

Appendix A

***Registry of Selected Functional Physical Therapy Outcome Measures
With Minimal Detectable Change Scores***

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ABC

Activities-specific Balance Confidence Scale

The ABC Scale is a 16-item questionnaire used to measure balance confidence in specific situations ranging from walking inside the home to walking on icy sidewalks.

Subjects are asked to rate their confidence level on an 11-point scale that ranges from 0% (no confidence) to 100% (complete confidence) in performing each activity without losing balance or becoming unsteady.

Scores range from 0% to 100% with a higher percentage indicating a higher degree of confidence in one's ability to perform the activity. (Salbach, et al., 2006; Steffan and Seney, 2008).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinsonism	13% (95%)	37 community dwelling persons with parkinsonism Mean age: 71	Steffan and Seney	2008
Stroke	13.99 %*	91 community dwelling persons with residual walking deficit post stroke Mean time from stroke: 227 days Mean age: 72	Salbach, et al.	2006

**calculation by researcher based on SEM of 5.05 and CI of 95% given in article.*

ASES

American Shoulder and Elbow Surgeons Score

The patient self-report section of the ASES is a condition specific scale intended to measure functional limitations and pain of the shoulder. The original ASES consists of two portions, a medical professional assessment section and a patient self report section. The patient self-report section is a patient self-evaluation questionnaire consisting of two dimensions: pain and activities of daily living.

The pain score is calculated from the single pain question and the function score from the sum of the 10 questions addressing function.

The pain score and function composite score are weighted equally (50 points each) and combined for a total score out of a possible 100 points.

A lower function score is equal decreased function. (Michener, 2002).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Shoulder dysfunction including the following: (# of patients in study with dx)	9.7 points (90%)	63 patients with shoulder dysfunction receiving outpatient PT Mean age: 51.7	Michener	2002
impingement syndrome 25				
Instability/dislocation 2				
Rotator cuff syndrome 2				
Adhesive capsulitis 5				
Hemiarthroplasty 1				
Shoulder weakness 2				
Humeral fracture 5				
Rotator cuff and adhesive capsulitis 6				
Status—post surgery 15				

Berg Balance Test

The BBT measures both static and dynamic aspects of balance using a 14-item scale that quantitatively assesses balance and risk for falls in older community-dwelling adults through direct observation of their performance.

The scale typically requires 10 to 20 minutes to complete and measures the patient's ability to maintain balance statically or during the performance of various functional movements, for a specified duration of time.

Each item is scored from 0 to 4, with a score of 0 representing inability to complete the task and a score of 4 representing independence with task.

A total score is calculated out of 56 possible points. (Blum, 2008).

BBT Scoring (points):

0-14	severe balance impairment
15-32	moderate balance impairment
33-49	mild balance impairment
50-56	normal balance

Berg Balance Test

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinsonism	5 points (95%)	37 community dwelling persons with Parkinsonism Mean age: 71	Steffan and Seney	2008
Parkinsonism	2.84 points (95%)	26 community dwelling with Parkinson's (Hoehn and Yahr stage ranging from 1 -3) Mean age: 62.5	Lim, et al.	2005
Stroke	5.8 points (90%) 6.9 points (95%)	48 patients receiving inpatient rehabilitation Mean time since stroke onset: 30.3 days Mean age: 73.5	Stevenson	2001
Elderly (>65 years)	<u>Score ranges (95%):</u> 0-24 5 points 25-34 7 points 35-44 5 points 45-56 4 points	Convenience sample of 118 people > 65 years Mean age 80.5	Donoghue et al.	2009

DASH

Disabilities of Arm, Shoulder, and Hand

The DASH is a 30 item questionnaire with each item rated between 1-5 with higher scores equating to increased difficulty, pain or lower function. Scores range from 0 to 100, with 0 reflecting no disability. The DASH is region-specific and so allows comparisons across diagnoses of the upper extremity. The DASH is used for discriminative and evaluative purposes. It contains two optional modules for work and sports/performing arts (Schmitt and Di Fabio, 2004; www.dash.iwh.on.ca).

DASH Score calculation:

$$\left[\frac{(\text{sum of } n \text{ responses})}{n} - 1 \right] \times 25 \quad \text{where } n \text{ is equal to the number of completed responses}$$

A DASH score may not be calculated if there are greater than 3 missing items.

Scoring of optional modules: Add up assigned values for each response; divide by 4 (number of items); subtract 1; multiply by 25. An optional module score may not be calculated if there are any missing items.

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Upper extremity musculoskeletal problems	All diagnoses (90%): 12.5 points Subdivisions by diagnosis (90%): Proximal dx 12.2 points Distal dx 13.7 points	211 patients with musculoskeletal upper extremity problems receiving outpatient rehabilitation Mean age: 47.5	Schmitt and Di Fabio	2004

FABQ

Fear Avoidance Beliefs Questionnaire

The FABQ is used to quantify fear-avoidance beliefs specific to low back pain and can help predict those who have a high pain avoidance behavior. The FABQ consists of 2 subscales. The first subscale (items 1-5) is the Physical Activity subscale (FABQ-PA) with a score range of 0 – 24 points; and the second subscale (items 6-16) is the Work subscale (FABQ-W) with a score range of 0 – 42 points. Patients must complete all items in the questionnaire, as there is no procedure to adjust for incomplete/unanswered items. Higher scores indicate higher levels of fear-avoidance beliefs for both FABQ scales (George, 2010).

Each subscale is graded separately by summing the responses of each scale item (0-6 for each item). For scoring purposes, only 4 of the physical activity scale items are scored (24 possible points) and only 7 of the work items (42 possible points) (George, 2010 and Waddell, et al., 1993).

FABQ Subscale Scoring:

- FABQ Physical Activity (FABQ-PA):
Sum items 2, 3, 4, and 5 (the score circled by the patient for these items)
- FABQ Work (FABQ-W):
Sum items 6, 7, 9, 10, 11, 12, and 15 (the score circled by the patient for these items)

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Chronic Low Back Pain	FABQ – PA (physical activity): 5.4 points (95%) FABQ – W (work): 6.8 points (95%)	53 patients with chronic LBP receiving PT in outpatient setting Mean age: 44.3	George	2010

Fugl-Meyer Assessment

The FM consists of a 33-item upper-extremity subscale (UE-FM) and a 17-item lower-extremity subscale.

The UE-FM items are related to movements of the proximal and distal parts of the upper extremities and include reflex testing, movement observation, grasp testing and assessment of coordination.

The items of the FM are mainly scored on a 3-point scale from 0 to 2.

Scoring ranges from 0 to a maximum of 66 for the UE-FM.

Higher scores indicate a higher level function (i.e. a lower level of impairment) (Deakin, et al., 2003; Jau-Hong Lin, et al., 2009).

UE-FM Scoring (points):

- | | |
|---|-------------------------|
| 0 | Unable to perform |
| 1 | Able to perform in part |
| 2 | Able to perform. |

Fugl-Meyer Assessment

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Chronic Stroke	UE-FM 7.2 points (95%) LE-FM 3.8 Motor FM 8.4 <u>*Short FM (S-FM)</u> UE-S-FM 12.2 points (95%) LE-S-FM 8.6 Motor-S-FM 16.0	60 patients receiving outpatient therapy following stroke (> 1 year since stroke onset) Mean age: 57.9	I-Ping Hsueh, et al.	2008
Chronic Stroke	UE-FM 5.2 points (95%)	30 patients with chronic stroke undergoing outpatient therapy Mean time since stroke onset: 693.2 days Mean age: 56.6	Jau-Hong Lin, et al.	2009

*The S-FM (SHORT FM) also includes both subscales (i.e. the UE-SFM and the LE-S-FM). Each of the subscales has 6 items retrieved from the FM. The raw scores of each subscale of the S-FM can be transformed to Rasch interval scores ranging from 0 to 100. The total motor SFM score ranges from 0 to 200 (I-Ping Hsueh, et al., 2008).

Functional Reach Test

The FRT is a static balance test designed to measure margins of stability. Functional reach is measured using a leveled "yardstick" secured to the wall at right acromion height. Subjects are asked to make a fist and extend their arm forward. The placement of the end of the third metacarpal along the yardstick is recorded (position 1). Subjects are then instructed, "Reach as far forward as you can go without taking a step". The placement of the end of the third metacarpal is again recorded (position 2).

The upper extremity is not allowed to contact the wall during this maneuver. No attempts are made to control the subjects' methods of reach. Functional reach is defined as the mean difference between positions 1 and 2 over three trials.

Scores of less than 15-18 cm indicate limited functional balance. Most healthy individuals with adequate function balance can reach 25 cm or more. (Duncan, et al. 1990).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinsonism	9 cm forward reach (95%) 7 cm backward reach (95%)	37 community dwelling persons with Parkinsonism Mean age: 71	Steffen and Seney	2008
Parkinsonism	11.5 cm (95%)	26 community dwelling with Parkinson's (Hoehn and Yahr stage ranging from 1 -3) Mean age: 62.5	Lim, et al.	2005

Gait Speed

Gait speed is a measure of overall walking performance, but does not include an endurance component.

Both fast and comfortable gait speeds are often measured to ensure that patients have the ability to change walking speed.

For the test of comfortable gait speed, subjects walk 10 meters and are instructed to “walk at your own comfortable walking speed and stop when you reach the far line.”

For the test of fast gait speed, subjects walk the 10 meters with the instructions to “walk as fast as you can safely walk” and to stop at the far line.

Time to complete the central 6 meters is measured to the nearest 100th of a second.

Time starts when any part of the foot crosses the plane of the first tapeline and ends when any part of the foot crosses the plane of the 6 meter mark.

Gait speeds are generally calculated in meters per second (Steffan and Seney, 2008).

Gait Speed

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Elderly (> 65 y.o.)	Free gait speed .19m/s (90%) Fast gait speed .21 m/s (90%)	52 ambulatory participants recruited from Senior Day Centers Mean age: 78	Mangione, et al.	2010
Alzheimer's	.09 m/s (90%)	51 patients with Alzheimer's from inpatient and day care facilities Mean age: 80.71	Ries, et al.	2009
s/p hip fracture w/ surgical repair	.17 m/s (90%)	108 community dwelling patients s/p hip fracture with surgical repair (within last 17 days); Age: >65 years	Latham, et al.	2008
Stroke	All patients (90%) (with or without physical assist) .30 m/s With physical assist .07 m/s (90%) No physical assist .36 m/s (90%)	35 patients post stroke receiving rehabilitation in inpatient facility Mean age: 67.4 Mean time post stroke: 34.5 days	Fulk and Echternach	2008
Parkinsonism	Comfortable speed .18m/s (95%) Fast speed .25m/s (95%)	37 community dwelling persons with parkinsonism Mean age: 71	Steffan and Seney	2008

GUG

Get Up and Go Test

To perform the GUG test, subject is seated on a standard-height chair with armrests in front of a 20 meter unobstructed corridor. The finish line is marked with a strip of tape placed 15.2 m away from the front edge of the chair. Subject is instructed to sit with their back touching the back of the chair. On the command “go”, the subject stands and walked as fast as possible along the level corridor. The subject is instructed not to slow down before crossing the finish line.

Time is measured in seconds from the command “go” until the subject crosses the finish line. The examiner stands at the finish line during the test.

Subjects who use canes or other assistive devices are permitted to use them during the test.

GUG Scoring:

- | | |
|---|------------------------|
| 1 | Normal |
| 2 | Very slightly abnormal |
| 3 | Mildly abnormal |
| 4 | Moderately abnormal |
| 5 | Severely abnormal |

"Normal" indicates that the patient gave no evidence of being at risk of falling during the test or at any other time.

"Severely abnormal" indicates that the patient appeared at risk of falling during the test.

Intermediate grades reflect the presence of any of the following as indicators of the possibility of falling: undue slowness, hesitancy, abnormal movements of the trunk or upper limbs, staggering, stumbling.

A patient with a score of 3 or more on the Get-up and Go Test is considered at risk of falling (Mathias, et al., 1986; Piva, et al., 2004).

GUG
Get Up and Go Test

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Knee osteoarthritis	1.2 – 1.5 seconds* (95%)	Convenience sample of 130 participants of a larger study; n=105 with knee OA Mean age: 62 n=25 controls Mean age 57	Piva, et al.	2004
Parkinsonism	1.63 seconds (95%)	26 community dwelling with Parkinson's (Hoehn and Yahr stage ranging from 1 -3) Mean age: 62.5	Lim, et al.	2005

*variance due to intra- and inter-tester measurement differences

LEFS

Lower Extremity Functional Scale

The LEFS is a 20-item condition-specific questionnaire designed for use with individuals who have musculoskeletal conditions of the lower extremity.

Each item of the LEFS is scored on a 5-point scale ranging from 0 (unable to perform/extreme difficulty) to 4 (no difficulty).

LEFS scores range from 0 to 80 points, with higher scores representing higher functional levels (Y.H Pua, 2009).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Lower extremity musculoskeletal dysfunction	9 points (90%)	107 patients in outpatient physical therapy clinic Mean age: 44	Binkley	1999
Hip Osteoarthritis	9.9 points (95%)	100 community dwelling adults with systemic hip OA Mean age: 62	Y.H. Pua, et al.	2009

Lysholm score

The Lysholm score is used as a comprehensive outcome assessment for patients with ACL injuries.

This scale is often used at six, nine, and twelve months to document early return to function.

This scale evaluates instability (25 points), pain (25 points), locking (15 points), swelling (10 points), stair climbing (10 points), limp (5 points), support, such as use of assistive device (5 points), and squatting (5 points).

The maximum score is 100 points with a higher score denoting better function.

The Lysholm Score is generally not interpreted on the basis of its individual items (Briggs, 2009).

Lysholm Scoring:

<65	Poor
65-83	Fair
84-90	Good
>90	Excellent

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
ACL injuries	8.9 points (95%)	712 patients s/p ACL reconstruction surgery Mean age: 37	Briggs	2009

NDI

Neck Disability Index

The NDI is a questionnaire containing 10 items of which seven are related to activities of daily living, two related to pain, and one item related to concentration.

Each item is scored from 0 to 5 with a total possible score of 50 points.

The total score is expressed as a percentage (by multiplying the numerical raw score by two to obtain percentage), with higher scores corresponding to greater disability (Cleland, 2006; Vernon and Mior, 1991).

NDI scoring (points and percentage):

0-4 points	0-8%	no disability
5-14	10-28%	mild disability
15-24	30-48%	moderate disability
25-34	50-68%	severe disability
> 34	>72%	complete disability

NDI
Neck Disability Index

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Cervical radiculopathy	10.2 percent (95%)	38 patients undergoing outpatient PT treatment Mean age: 51.2	Cleland	2006
Neck pain (with or without concomitant upper extremity symptoms)	10.2 percent (95%)	91 patients with neck pain Mean age 47.8	Young	2009
Non-specific neck pain	10.5 percent (95%)	183 patients with nonspecific neck pain Mean age: 45.8	Pool	2007

NPRS

Numeric Pain Rating Scale

The NPRS is based on an 11-point numerical rating scale for determining pain intensity, ranging from 0 (no pain) to 10 (worst pain imaginable).

The questions associated with the NPRSs are as follows: “Over the past 24-hours, how bad has your pain been?” and “On average over the past 2-days, how bad has your pain been?” (Spadoni, 2004).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Pain (non-chronic) in one of following sites: Upper extremity Head, neck, thorax Low back, pelvis Lower extremity	3 points (90%) for pain over last 2 days 3.5 points (90%) for pain over last 24 hours	220 patients receiving outpatient treatment for musculoskeletal condition Age: > 16 years old	Spadoni	2004

Oswestry Disability Index

The Oswestry Disability Index is a self report questionnaire that measures the degree to which back or leg pain impacts functional activities.

It is divided into ten sections that assess the level of pain and interference with physical activities such as sleeping, self-care, sex life, social life and traveling.

Each question has a possible six responses which are scored from 0 to 5. Patients check one response statement in each section that is most relevant to them.

The score for each section is added and divided by the total possible score (fifty if all sections are completed), with the resulting score multiplied by a hundred to yield a percentage score with 0% equivalent to no disability and 100% equivalent to a great deal of disability (Maughan, 2010 and Dawson, 2010).

Oswestry Scoring:

Total possible score for each section: 5 points; if the first statement is marked then the section score = 0; if the last statement is marked the section score = 5.

If all ten sections are completed the score is calculated as follows:

Total points scored divided by 50 (total possible score) x 100 = %

If one section is not applicable or is missed, then the total possible score is reduced by 5 points (thus, 45 x 100 = %

Oswestry Disability Index

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Chronic LBP	16.7 percent (95%)	63 patients with chronic LBP receiving physical therapy treatment Mean age: 52	Maughan	2010
Low Back Pain (with or without referral to lower extremity)	10.5 percent (90%)	106 patients receiving outpatient PT for LBP ages: 18 – 71	Davidson and Keating	2002
Back pain previous year (n= 214)	5.94 percent (90%)	296 nursing students Mean age: 25.9	Dawson	2010
Back pain on day of study (n = 82)	6.43 percent (90%)			

Penn Shoulder Score

The Penn Shoulder Score (PSS) is a condition specific self-report measure. It uses a 100-point scale consisting of 3 subscales, including pain, satisfaction, and function.

The pain subscale consists of 3 pain items addressing pain at rest, with normal activities and with strenuous activities. All items are based on a 10-point numeric rating scale with end points of “no pain” and “worst possible pain.”

Points are given for each item by subtracting the number circled from the maximum of 10. Thus, a patient receives 30 points for complete absence of pain. If a patient is not able to use the arm for normal or strenuous activities, 0 points are scored for that item.

Patient satisfaction with shoulder function is assessed with a 10-point numeric rating scale. The endpoints are “not satisfied” and “very satisfied.” A maximum of 10 points for this section indicates that the patient is “very satisfied” with the current level of function of their shoulder.

The function subsection is based on a sum of 20 items, using a 4 point scale. The response options include 0 (can’t do at all), 1 (much difficulty), 2 (with some difficulty), and 3 (no difficulty). A patient receives 60 points if all activities can be performed without difficulty. Because some items in this subscale may not be applicable to all patients, the response option “did not do before injury” is available. For scoring purposes, the total possible points for the function subscale is reduced by 3 when this option is circled. Scoring is based on a percentage of the total possible points.

The total PSS maximum score of 100 indicates high function, low pain, and high satisfaction with the shoulder function. The PSS can be used in the aggregate or each subscale individually (Leggin, 2006).

Penn Shoulder Score

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
<p>Shoulder disorders (the following conditions were included in study):</p> <ul style="list-style-type: none"> • Impingement/tendonitis • Rotator cuff tear • Adhesive capsulitis/frozen shoulder • Proximal humerus fracture • Acromioclavicular joint arthritis • Glenohumeral joint arthritis 	<p>Total score (90%): 12.1points</p> <p>MDC (90%) according to subscale:</p> <p>Pain 5.2 points</p> <p>Satisfaction 1.8 points</p> <p>Function 8.6 points</p>	<p>109 patients with shoulder disorders undergoing physical therapy treatment</p> <p>Mean age 49.1</p>	Leggin	2006

PI-NRS

Pain Intensity Numerical Rating Scale

The Pain Intensity Numerical Rating Scale uses an 11-point numerical rating scale for determining pain intensity, ranging from 0 (no pain) to 10 (very severe pain). When used as a graphic rating scale, a 10cm baseline is used. (van der Roer, 2006).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Subacute and chronic neck pain and/or referred pain	4.0 points (95%) Categories (95%): Neck pain only 4.2 points Pain referred to arm 6.2 points	658 patients receiving treatment for neck pain and/or referred pain Mean age 54.1	Kovacs	2008
Acute and chronic low back pain (LBP)	Categories (95%): LBP only 3.7 points Pain referred to leg 5.4 points	1067 patients receiving treatment for acute or chronic LBP Mean age: 54.3	Kovacs	2007
Acute Low Back Pain	4.7 points (95%)	442 patients with LBP (304 acute LBP and 138 chronic LBP)	van der Roer	2006
Chronic Low Back Pain	4.5 points (95%)	Mean age: 46		

POMA

Performance Oriented Mobility Assessment, Tinetti

The Performance-Oriented Mobility Assessment (POMA) is an instrument used to provide an evaluation of balance and gait. The POMA consists of 8 balance items and 8 gait items scored on a three point ordinal scale with a range of 0 to 2. A score of 0 represents the most impairment, while a 2 represents independence of the patient.

The balance items include sitting balance, rising from a chair and sitting down again, standing balance (eyes open and eyes closed), and turning balance. The balance items add up to a maximum score of 12 points (POMA-B).

The gait items include gait initiation, step length, step height, step length symmetry and continuity, path direction, and trunk sway, adding up to a maximum score of 16 points (POMA-G).

The total score (POMA-T) ranges from 0 to 28 points. Lower scores indicate poorer performance.

In general, patients who score below 19 are at a high risk for falls. Patients who score in the range of 19-24 indicate that the patient has a risk for falls. Patients scoring above 24 are considered at low risk for falls (Faber, et al. 2006; Tinetti, 1986).

POMA Scoring (points):

< 19	high risk for falls
19-24	at risk for falls
>24	low risk for falls.

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
None specified (elderly: >65 y.o.)	5 points (95%)	245 residents of either independent or nursing home facility Mean age: 84.9	Faber, et al.	2006

Quebec Back Pain Disability Scale

The QBPDS is a 20-item self report questionnaire that measures the level of physical functioning in patients with low back pain. Each item is scored on a 6-point scale ranging from 0 (no difficulty at all) to 5 (unable to do). The total score ranges from 0 (no dysfunction) to 100 (maximum dysfunction) (van der Roer, 2006).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Acute Low Back Pain	32.9 points (95%)	442 total patients with LBP Subdivided into: 304 acute LBP 138 chronic LBP Mean age: 46	van der Roer	2006
Chronic Low Back Pain	24.6 points (95%)			
Low Back Pain (with or without referral to lower extremity)	15 points (90%)	106 patients receiving outpatient PT for LBP ages: 18 – 71	Davidson and Keating	2002

Roland-Morris Questionnaire

The Roland Morris Disability Questionnaire is a self-administered disability measure that consists of 24 statements regarding activity limitations due to back pain, such as walking, lying and self-care. Patients are asked to answer yes or no to each statement. Each positive answer is worth one point with scores ranging from 0 (no disability) to 24 (severely disabled). (Maughan, 2010 and Stratford, 1996).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Chronic LBP	4.9 (95%)	63 patients with chronic LBP receiving physical therapy treatment Mean age: 52	Maughan	2010
Low Back Pain	4-5 points (95%) depending on score comparison*	60 patients receiving PT in outpatient setting Mean age: 41	Stratford	1996

*According to Stratford, the MDC for the Roland Morris varies according to the location of scores on the scale.

MDC of 4 points needed to detect *improvement* when:

- Initial score is between 4-11 points
- Initial score is > 16 points

MDC of 4 points needed to detect *deterioration* when

- Initial score is < 7 points
- Initial score is between 13-20 points

Additionally, improvement in patients with initial score of < 4 points or deterioration in patients with initial scores >20 points cannot be detected with high degree of confidence.

Romberg Test

The Romberg Test and Sharpened Romberg Test are tests of static balance that measure the ability to maintain balance with a narrowed base of support.

The Romberg Test is performed with feet together and eyes open for 60 seconds and with feet together and eyes closed for 60 seconds.

The Sharpened Romberg Test is performed in a tandem standing position, with the dominant foot behind the non-dominant foot for 60 seconds with eyes open and for 60 seconds with eyes closed.

Timing starts after the subject has assumed the proper position and is stopped if the subject moves his or her feet from the proper position, opens his or her eyes on the eyes-closed trials, or when the maximum balance time of 60 seconds is reached.

Subjects may be given assistance to assume the test position.

Up to three trials may be performed if the maximum balance time is not reached in either of the first 2 trials. Upper-extremity use is not controlled during testing (Steffan and Seney, 2008).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinsonism	<u>Standard Romberg</u> (95%) Eyes open 10 seconds Eyes closed 19 seconds <u>“Sharpened Romberg”</u> (95%) (Tandem stance) Eyes open 39 seconds Eyes closed 19 seconds	37 community dwelling persons with Parkinsonism Mean age: 71	Steffan and Seney	2008

SF 36

36-Item Short-Form Health Survey

The SF-36 is a quality-of-life questionnaire used to assess physical and mental health concepts from the respondent's point of view.

These concepts are:

- (1) limitations in physical activities because of health problems (Physical Functioning),
- (2) limitations in social activities because of physical or emotional problems (Social Functioning),
- (3) limitations in usual role activities because of physical health problems (Role–Physical),
- (4) bodily pain (Bodily Pain),
- (5) psychological distress and well-being (Mental Health),
- (6) limitations in usual role activities because of emotional problems (Role–Emotional),
- (7) energy and fatigue (Vitality), and
- (8) general health perceptions (General Health).

These 8 domains are relevant to general functional status and well-being.

For each scale, item scores are coded, summed, and transformed, with final values (expressed as a percentage) ranging from 0 (worst health) to 100 (best health) (Steffan and Seney, 2008).

SF 36 (36-Item Short-Form Health Survey)

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinson's	<u>SF subscales (95%):</u> Physical Functioning 28 Role – Physical 45 Bodily Pain 25 General Health 28 Social Functioning 29 Role – Emotional 45 Vitality 19 Mental Health 19	37 community dwelling persons with Parkinsonism Mean age: 71	Steffen and Seney	2008
s/p Total Hip Arthroplasty (THA)	<u>SF Subscales (95%)</u> Physical Functioning 18.99 Role – Physical 22.71 Bodily Pain 38.09 General Health 27.73 Social Functioning 42.05 Role – Emotional 30.33 Vitality 31.35 Mental Health 23.33	469 patients s/p THA in Spanish hospital system Mean age: 69.4	Quintana	2005
s/p hip fracture and surgical repair (non THA)	Physical Functioning 22.82 (90%)	108 community dwelling patients s/p hip fracture and surgical repair (within last 17 days); Age: >65 years	Latham, et al.	2008
s/p Total Knee Arthroplasty (TKA)	<u>SF Subscales (95%)</u> Physical Functioning 19.50 Role – Physical 26.97 Bodily Pain 37.91 General Health 27.40 Social Functioning 41.23 Role – Emotional 28.52 Vitality 29.84 Mental Health 24.19	516 patient s/p TKA in Spanish hospital system Mean age: 71.6	Escobar	2007

Six Minute Walk Test

The 6MWT tests endurance by measuring the maximum distance that a person can walk in six minutes.

The 6MWT may be conducted in a 3-m-wide hallway with a 15-m area marked off at 1-m intervals and large cones placed at each end.

Subjects are read the following instructions:

“When I say ‘go,’ I want you to walk around this track. Keep walking until I say ‘stop’ or until you are too tired to go any further. If you need to rest, you can stop until you’re ready to go again. I am interested in measuring how far you can walk. You can begin when I say ‘go.’”

The following encouragements are provided:

- (1) after 1 minute, “You are doing well. You have 5 minutes to go.”
- (2) at 2 minutes, “Keep up the good work. You have 4 minutes to go.”
- (3) at 4 minutes, “Keep up the good work. You have 2 minutes left.”
- (4) at 5 minutes, “You are doing well. You have only 1 minute to go.”

Fifteen seconds prior to completion, subjects are informed that time will stop shortly, and the test is stopped at six minutes.

Total distance walked is measured to the nearest meter (Steffan and Seney, 2008).

Six Minute Walk Test

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Elderly (> 65 y.o.)	65 m (90%)	52 ambulatory participants recruited from Senior Day Centers Mean age: 78	Mangione, et al.	2010
Parkinsonism	82 m (95%)	37 community dwelling persons with parkinsonism Mean age: 71	Steffan and Seney	2008
Alzheimer's	33.47 m (90%)	51 patients with Alzheimer's from inpatient and day care facilities Mean age: 80.71	Ries, et al.	2009
post Stroke	54.1 m (90%)	37 patients post stroke receiving rehabilitation in inpatient facility Mean age: 66.3 Mean time post stroke: 33.7 days	Fulk, et al.	2008
s/p hip fracture w/ surgical repair	53.51 m (90%)	108 community dwelling patients s/p hip fracture with surgical repair (within last 17 days); Age: >65 years	Latham, et al.	2008
Multiple Sclerosis	92.16 m (95%)	120 community dwelling, ambulatory adults with MS (88% of participants had primary remitting, 11% primary progressive; 1% unknown) Mean age: 45	Paltamaa, et al.	2008

SPADI

Shoulder Pain and Disability Index

The SPADI is a 13-item self-administered questionnaire relating to pain and functional status of the shoulder region. It includes a five-item pain scale and an eight-item disability scale. Each item is scored from 0 to 10, with total scores ranging from 0 to 100 for both the pain and disability sections and higher scores indicate greater disability.

The total SPADI is calculated as the mean of the pain and disability scales (Schmitt and DiFabio, 2004).

SPADI scoring:

Disability score: ____ / 80 x 100 = %

Note: If not all questions are answered, divide by the total possible score (thus if 1 question is missed then divide by 70)

Total SPADI score: ____ 130 x 100 = %

Note: If not all questions are answered, divide by the total possible score (thus if 1 question is missed then divide by 120)

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Upper extremity musculoskeletal problems	18.1 points (90%)	211 patients with musculoskeletal upper extremity problems receiving outpatient rehabilitation Mean age: 47.5	Schmitt and Di Fabio	2004

SPPB

Short Physical Performance Battery

The Short Physical Performance Battery is a composite of three timed tests:

- (1) chair rise for five repetitions without the use of arms;
- (2) standing balance in positions of side-by side stance, semi-tandem stance, and full tandem stance; and
- (3) walking speed over a 2.44-m (8-ft) course.

Each test is scored on a scale of 0 to 4, with a total score range of 0-12 points.

Higher scores indicate better function (Mangione, et al., 2010).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
s/p hip fracture w/ surgical repair	3.42 points (90%)	108 community dwelling patients s/p hip fracture with surgical repair (within last 17 days); Age: >65 years	Latham, et al.	2008
Elderly (> 65 y.o)	2.9 points (90%)	52 ambulatory participants recruited from Senior Day Centers Mean age: 78	Mangione, et al.	2010

Stroke Impact Scale

The Stroke Impact Scale is a 59-item self-report assessment of stroke outcome used to assess health related quality of life.

This test has 8 domains:

- (1) strength,
- (2) hand function,
- (3) mobility,
- (4) physical and instrumental activities of daily living (i.e., ADLs/IADLs),
- (5) memory and thinking,
- (6) communication,
- (7) emotion, and
- (8) social participation.

Scores for each domain range from 0 to 100, and higher scores indicate a better HRQoL.

The strength items are rated in terms of strength.

Memory, communication, ADLs/IADLs, mobility, and hand function items are rated in terms of amount of difficulty.

Emotion and social participation items are rated in terms of frequency.

Four of the subscales (strength, hand function, ADLs/IADLs, and mobility) can be combined into a composite physical domain (Carod-Artal, et al., 2008).

Stroke Impact Scale

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Stroke	<u>Domain:</u> (95%) strength 31.70 points hand function 20.36 mobility 18.99 ADL/IADL 23.22 memory 21.52 communication 24.05 emotion 24.09 social participation 26.70 Composite physical domain 13.23 points	174 patients with stroke in outpatient rehabilitation clinic Mean time since stroke onset: 18.6 months Mean age: 56.9	Carod-Artal, et al.	2008
Stroke	<u>Domain:</u> (95%) strength 24.0 points ADL/IADL 17.3 mobility 15.1 hand function 25.9	74 patients with stroke receiving rehabilitation at a medical center Mean time since stroke onset: 17.5 months Mean age: 54.1	Lin, KC, et al.	2010

TUG

Timed Up and Go Test

The TUG is a mobility test generally used for the geriatric population. It tests basic functional mobility and is scored as the minimum time needed to stand up from a standard armchair, walk across a distance of 3 meters (10ft), turn around, walk back to the chair, and sit down again.

Subjects are instructed to independently rise on the word “go,” comfortably walk a clearly marked distance of 3 meters, turn around a cone, walk back to the chair, and sit down with their back against the chair.

Time is started once the subject’s back leaves the chair and ends when the subject’s back touches the back of the chair.

Time to complete the course is measured to the nearest 100th of a second. Subjects may complete the measure twice with the average of the two trials used (Faber, et al., 2006; Mangione, et al., 2010; Seffan and Seney, 2008).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinsonism	11 seconds (95%)	37 community dwelling persons with Parkinsonism Mean age: 71	Steffan and Seney	2008
Alzheimer’s	4.09 seconds (90%)	51 patients with Alzheimer’s from inpatient and day care facilities Mean age: 80.71	Ries, et al.	2009
Elderly (> 65 y.o.)	4.0 seconds (90%)	52 ambulatory participants recruited from Senior Day Centers Mean age: 78	Mangione, et al.	2010

UPDRS

Unified Parkinson Disease Rating Scale

The UPDRS is the gold standard instrument used to measure disease severity in Parkinson's Disease.

It contains 3 subscales:

- I - Mentation, Behavior, and Mood (range_0–16),
- II - Activities of Daily Living (ADL) (range_0–52), and
- III - Motor Examination (range_0– 108).

A total score (range_0–176) can be derived by summing the 3 subscales. Lower scores indicate a less involved disease process (Steffan and Seney, 2008).

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Parkinsonism	Subscales (95%): Mentation, Behavior and Mood 2 points Activities of Daily Living 4 points Motor Examination 11 points Total Score (all scales) 13 points	37 community dwelling persons with parkinsonism Mean age: 71	Steffan and Seney	2008
Parkinsonism	Motor Examination 15 points Total Score (all scales) 15 points	26 community dwelling with Parkinson's (Hoehn and Yahr stage ranging from 1 -3) Mean age: 62.5	Lim, et al.	2005

Wolf Motor Function Test

The WMFT test is a laboratory based measurement used to assess upper extremity motor function.

This test quantifies upper extremity movement ability through timed single or multiple joint motions and functional tasks.

Progressing from proximal to distal joint movement, the test consists of 15 timed items, 2 strength measures and a quality of motor function scale for each of the timed items.

The quality of motor function scale is a 6-point Functional Ability Scale where 0 = does not attempt with the involved arm and 5 = arm does participate/ movement appears to be normal.

Tasks 1 to 6 of the WMFT involve timed joint-segment movements, and tasks 7 to 15 consisted of timed integrative functional movements.

The speed at which functional tasks can be completed is measured by performance time and the movement quality when completing the tasks is measured by functional ability.

The maximum time allowed to complete an item is 120 seconds.

The WMFT starts with simple items, such as placing the hand on a table top, and progresses to more challenging fine motor tasks, such as stacking checkers or picking up a paper clip (Fritz, et al., 2009; Wolf, et al., 2001; Lin, et al., 2009).

Wolf Motor Function Test

Diagnosis	MDC (CI)			Study Sample Population	Author	Year
Sub-acute stroke	Performance Time Score	(90%) .70 sec.	(95%) .50 sec.	96 individuals with sub-acute stroke (3-9 months) participating in the EXCITE national clinical trial Mean age: 62.3	Fritz, et al.	2009
	Item Description					
	Forearm to table	1.8	2.1			
	Forearm to box	1.4	1.6			
	Extend elbow	1.4	1.7			
	Extend elbow with weight	2.0	2.4			
	Hand to table (front)	1.3	1.5			
	Hand to box (front)	1.6	1.9			
	Weight to box (lbs)	4.3	5.2			
	Reach & retrieve	2.8	3.4			
	Lift can	1.6	2.0			
	Lift pencil	2.5	3.0			
	Lift paper clip	1.8	2.2			
	Stack checkers	2.6	3.2			
	Flip cards	1.0	1.2			
	Grip strength (lbs)	0.1	0.1			
	Turn key in lock	0.8	1.0			
	Fold towel	1.0	1.2			
	Lift basket	1.7	2.0			
	Average WMFT FAS	0.1	0.1			
Stroke	*WMFT Performance Time	4.36 seconds (90%)		57 patients post stroke (> 6 months) Mean time since stroke: 12.98 months Mean age: 54.6	Lin, et al.	2009
	*WMFT FAS	.37 seconds (90%)				

*Indicates that when the change scores of an individual stroke patient between 2 measurements reach 4.36 seconds and 0.37 points on the WMFT time and WMFT FAS respectively, the clinician may interpret the changes as true and reliable (i.e., beyond measurement error), given the 90% confidence level (Lin, et al., 2009).

WOMAC

Western Ontario and McMaster Universities Osteoarthritis Index

The WOMAC is a disease-specific, self-administered questionnaire used with patients who have hip or knee osteoarthritis.

It contains a multi-dimensional scale made up of 24 items grouped into three dimensions:

pain (five items),
stiffness (two items), and
physical function (17 items).

Each item has five response levels representing different degrees of intensity (none, mild, moderate, severe, or extreme) that are scored from 0 to 4.

The final score for the WOMAC is determined by adding the aggregate scores for pain, stiffness, and function.

The data is standardized to a range of values from 0 to 100, where 0 represents the best health status and 100 the worst possible status.

An improvement is achieved by reducing the overall score (Escobar, 2007).

WOMAC

Western Ontario and McMaster Universities Osteoarthritis Index

Diagnosis	MDC (CI)	Study Sample Population	Author	Year
Hip osteoarthritis	WOMAC – PF (Physical function) 9.1 points (95%)	100 community dwelling adults with systemic hip OA Mean age: 62	Y.H. Pua, et al.	2009
Post Total Knee Arthroplasty (TKA)	WOMAC Categories (95%): Pain 22.39 points Functional Limitation 13.1 points Stiffness 29.12 points	516 patient s/p TKA in Spanish hospital system Mean age: 71.6	Escobar	2007
Post Total Hip Arthroplasty (THA)	WOMAC Categories (95%): Pain 21.38 points Functional Limitation 11.93 points Stiffness 27.98 points	469 patients s/p THA in Spanish hospital system Mean age: 69.4	Quintana	2005

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Appendix B

Samples of All Outcome Measures Used in Study

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ACTIVITIES-SPECIFIC BALANCE CONFIDENCE SCALE* **(ABC)**

Instructions to Participants:

For each of the following, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady from choosing one of the percentage points on the scale from 0% to 100%. If you do not currently do the activity in question, try and imagine how confident you would be if you had to do the activity. If you normally use a walking aid to do the activity or hold onto someone, rate your confidence as it you were using these supports. If you have any questions about answering any of these items, please ask the administrator.

The Activities-specific Balance Confidence (ABC) Scale*

For each of the following activities, please indicate your level of self-confidence by choosing a corresponding number from the following rating scale:

0%	10	20	30	40	50	60	70	80	90	100%
no confidence										completely confident

“How confident are you that you will not lose your balance or become unsteady when you...

1. ...walk around the house? ____%
2. ...walk up or down stairs? ____%
3. ...bend over and pick up a slipper from the front of a closet floor ____%
4. ...reach for a small can off a shelf at eye level? ____%
5. ...stand on your tiptoes and reach for something above your head? ____%
6. ...stand on a chair and reach for something? ____%
7. ...sweep the floor? ____%
8. ...walk outside the house to a car parked in the driveway? ____%
9. ...get into or out of a car? ____%
10. ...walk across a parking lot to the mall? ____%
11. ...walk up or down a ramp? ____%
12. ...walk in a crowded mall where people rapidly walk past you? ____%

13. ...are bumped into by people as you walk through the mall? ____%
14. ... step onto or off an escalator while you are holding onto a railing? ____%
15. ... step onto or off an escalator while holding onto parcels such that you cannot hold onto the railing? ____%
16. ...walk outside on icy sidewalks? ____%

*Powell, LE & Myers AM. The Activities-specific Balance Confidence (ABC) Scale. *J Gerontol Med Sci* 1995; 50(1): M28-34.

AMERICAN SHOULDER AND ELBOW SURGEONS SCORE **(ASES)**

Patient Self-Evaluation

Pain:

How bad is your pain today (mark line)

no pain at all

pain as bad
as it can be

Function: Circle the number in the box that indicates your ability to do the following activities:

0= Unable to do; 1= Very Difficult to do; 2= Somewhat difficult; 3= Not difficult

Activity	Right Arm	Left Arm
1. Put on a coat	0 1 2 3	0 1 2 3
2. Sleep on your painful or affected side	0 1 2 3	0 1 2 3
3. Wash back/do up bra in back	0 1 2 3	0 1 2 3
4. Manage toileting	0 1 2 3	0 1 2 3
5. Comb hair	0 1 2 3	0 1 2 3
6. Reach a high shelf	0 1 2 3	0 1 2 3
7. Lift 10 lbs above shoulder	0 1 2 3	0 1 2 3
8. Throw a ball overhead	0 1 2 3	0 1 2 3
9. Do usual work – List: _____	0 1 2 3	0 1 2 3
10. Do usual sport – List: _____	0 1 2 3	0 1 2 3

(Michener, 2002)

BERG BALANCE TEST

Name: _____ Date: _____
Location: _____ Rater: _____

ITEM DESCRIPTION	SCORE (0-4)
Sitting to standing	_____
Standing unsupported	_____
Sitting unsupported	_____
Standing to sitting	_____
Transfers	_____
Standing with eyes closed	_____
Standing with feet together	_____
Reaching forward with outstretched arm	_____
Retrieving object from floor	_____
Turning to look behind	_____
Turning 360 degrees	_____
Placing alternate foot on stool	_____
Standing with one foot in front	_____
Standing on one foot	_____
Total	_____

GENERAL INSTRUCTIONS

Please document each task and/or give instructions as written. When scoring, please record the lowest response category that applies for each item.

In most items, the subject is asked to maintain a given position for a specific time.

Progressively more points are deducted if:

- ☐ the time or distance requirements are not met
- ☐ the subject's performance warrants supervision
- ☐ the subject touches an external support or receives assistance from the examiner

Subject should understand that they must maintain their balance while attempting the tasks. The choices of which leg to stand on or how far to reach are left to the subject.

Poor judgment will adversely influence the performance and the scoring.

Equipment required for testing is a stopwatch or watch with a second hand, and a ruler or other indicator of 2, 5, and 10 inches. Chairs used during testing should be a reasonable height. Either a step or a stool of average step height may be used for item # 12.

Berg Balance Test

SITTING TO STANDING

INSTRUCTIONS: Please stand up. Try not to use your hand for support.

- () 4 able to stand without using hands and stabilize independently
- () 3 able to stand independently using hands
- () 2 able to stand using hands after several tries
- () 1 needs minimal aid to stand or stabilize
- () 0 needs moderate or maximal assist to stand

STANDING UNSUPPORTED

INSTRUCTIONS: Please stand for two minutes without holding on.

- () 4 able to stand safely for 2 minutes
- () 3 able to stand 2 minutes with supervision
- () 2 able to stand 30 seconds unsupported
- () 1 needs several tries to stand 30 seconds unsupported
- () 0 unable to stand 30 seconds unsupported

If a subject is able to stand 2 minutes unsupported, score full points for sitting unsupported. Proceed to item #4.

SITTING WITH BACK UNSUPPORTED BUT FEET SUPPORTED ON FLOOR OR ON A STOOL

INSTRUCTIONS: Please sit with arms folded for 2 minutes.

- () 4 able to sit safely and securely for 2 minutes
- () 3 able to sit 2 minutes under supervision
- () 2 able to sit 30 seconds
- () 1 able to sit 10 seconds
- () 0 unable to sit without support 10 seconds

STANDING TO SITTING

INSTRUCTIONS: Please sit down.

- () 4 sits safely with minimal use of hands
- () 3 controls descent by using hands
- () 2 uses back of legs against chair to control descent
- () 1 sits independently but has uncontrolled descent
- () 0 needs assist to sit

TRANSFERS

INSTRUCTIONS: Arrange chair(s) for pivot transfer. Ask subject to transfer one way toward a seat with armrests and one way toward a seat without armrests. You may use two chairs (one with and one without armrests) or a bed and a chair.

- () 4 able to transfer safely with minor use of hands
- () 3 able to transfer safely definite need of hands
- () 2 able to transfer with verbal cuing and/or supervision
- () 1 needs one person to assist
- () 0 needs two people to assist or supervise to be safe

STANDING UNSUPPORTED WITH EYES CLOSED

INSTRUCTIONS: Please close your eyes and stand still for 10 seconds.

- () 4 able to stand 10 seconds safely
- () 3 able to stand 10 seconds with supervision
- () 2 able to stand 3 seconds
- () 1 unable to keep eyes closed 3 seconds but stays safely
- () 0 needs help to keep from falling

STANDING UNSUPPORTED WITH FEET TOGETHER

INSTRUCTIONS: Place your feet together and stand without holding on.

- () 4 able to place feet together independently and stand 1 minute safely
- () 3 able to place feet together independently and stand 1 minute with supervision
- () 2 able to place feet together independently but unable to hold for 30 seconds
- () 1 needs help to attain position but able to stand 15 seconds feet together
- () 0 needs help to attain position and unable to hold for 15 seconds

REACHING FORWARD WITH OUTSTRETCHED ARM WHILE STANDING

INSTRUCTIONS: Lift arm to 90 degrees. Stretch out your fingers and reach forward as far as you can.

(Examiner places a ruler at the end of fingertips when arm is at 90 degrees. Fingers should not touch the ruler while reaching forward. The recorded measure is the distance forward that the fingers reach while the subject is in the most forward lean position. When possible, ask subject to use both arms when reaching to avoid rotation of the trunk.)

- () 4 can reach forward confidently 25 cm (10 inches)
- () 3 can reach forward 12 cm (5 inches)
- () 2 can reach forward 5 cm (2 inches)
- () 1 reaches forward but needs supervision
- () 0 loses balance while trying/requires external support

PICK UP OBJECT FROM THE FLOOR FROM A STANDING POSITION

INSTRUCTIONS: Pick up the shoe/slipper, which is in front of your feet.

- () 4 able to pick up slipper safely and easily
- () 3 able to pick up slipper but needs supervision
- () 2 unable to pick up but reaches 2-5 cm (1-2 inches) from slipper and keeps balance independently
- () 1 unable to pick up and needs supervision while trying
- () 0 unable to try/needs assist to keep from losing balance or falling

TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING

INSTRUCTIONS: Turn to look directly behind you over toward the left shoulder. Repeat to the right.

(Examiner may pick an object to look at directly behind the subject to encourage a better twist turn.)

- () 4 looks behind from both sides and weight shifts well
- () 3 looks behind one side only other side shows less weight shift
- () 2 turns sideways only but maintains balance
- () 1 needs supervision when turning
- () 0 needs assist to keep from losing balance or falling

TURN 360 DEGREES

INSTRUCTIONS: Turn completely around in a full circle. Pause. Then turn a full circle in the other direction.

- () 4 able to turn 360 degrees safely in 4 seconds or less
- () 3 able to turn 360 degrees safely one side only 4 seconds or less
- () 2 able to turn 360 degrees safely but slowly
- () 1 needs close supervision or verbal cuing
- () 0 needs assistance while turning

PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSUPPORTED

INSTRUCTIONS: Place each foot alternately on the step/stool. Continue until each foot has touched the step/stool four times.

- () 4 able to stand independently and safely and complete 8 steps in 20 seconds
- () 3 able to stand independently and complete 8 steps in > 20 seconds
- () 2 able to complete 4 steps without aid with supervision
- () 1 able to complete > 2 steps needs minimal assist
- () 0 needs assistance to keep from falling/unable to try

STANDING UNSUPPORTED ONE FOOT IN FRONT

INSTRUCTIONS: (DEMONSTRATE TO SUBJECT) Place one foot directly in front of the other. If you feel that you cannot place your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot. (To score 3 points, the length of the step should exceed the length of the other foot and the width of the stance should approximate the subject's normal stride width.)

- () 4 able to place foot tandem independently and hold 30 seconds
- () 3 able to place foot ahead independently and hold 30 seconds
- () 2 able to take small step independently and hold 30 seconds
- () 1 needs help to step but can hold 15 seconds
- () 0 loses balance while stepping or standing

STANDING ON ONE LEG

INSTRUCTIONS: Stand on one leg as long as you can without holding on.

- () 4 able to lift leg independently and hold > 10 seconds
- () 3 able to lift leg independently and hold 5-10 seconds
- () 2 able to lift leg independently and hold L 3 seconds
- () 1 tries to lift leg unable to hold 3 seconds but remains standing independently.
- () 0 unable to try of needs assist to prevent fall

() TOTAL SCORE (Maximum = 56)

DISABILITIES OF THE ARM, SHOULDER AND HAND

THE DASH

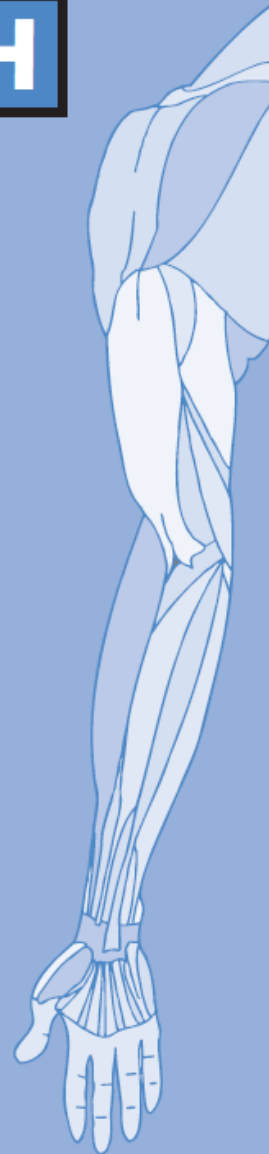
INSTRUCTIONS

This questionnaire asks about your symptoms as well as your ability to perform certain activities.

Please answer *every question*, based on your condition in the last week, by circling the appropriate number.

If you did not have the opportunity to perform an activity in the past week, please make your *best estimate* on which response would be the most accurate.

It doesn't matter which hand or arm you use to perform the activity; please answer based on your ability regardless of how you perform the task.



DISABILITIES OF THE ARM, SHOULDER AND HAND

Please rate your ability to do the following activities in the last week by circling the number below the appropriate response.

	NO DIFFICULTY	MILD DIFFICULTY	MODERATE DIFFICULTY	SEVERE DIFFICULTY	UNABLE
1. Open a tight or new jar.	1	2	3	4	5
2. Write.	1	2	3	4	5
3. Turn a key.	1	2	3	4	5
4. Prepare a meal.	1	2	3	4	5
5. Push open a heavy door.	1	2	3	4	5
6. Place an object on a shelf above your head.	1	2	3	4	5
7. Do heavy household chores (e.g., wash walls, wash floors).	1	2	3	4	5
8. Garden or do yard work.	1	2	3	4	5
9. Make a bed.	1	2	3	4	5
10. Carry a shopping bag or briefcase.	1	2	3	4	5
11. Carry a heavy object (over 10 lbs).	1	2	3	4	5
12. Change a lightbulb overhead.	1	2	3	4	5
13. Wash or blow dry your hair.	1	2	3	4	5
14. Wash your back.	1	2	3	4	5
15. Put on a pullover sweater.	1	2	3	4	5
16. Use a knife to cut food.	1	2	3	4	5
17. Recreational activities which require little effort (e.g., cardplaying, knitting, etc.).	1	2	3	4	5
18. Recreational activities in which you take some force or impact through your arm, shoulder or hand (e.g., golf, hammering, tennis, etc.).	1	2	3	4	5
19. Recreational activities in which you move your arm freely (e.g., playing frisbee, badminton, etc.).	1	2	3	4	5
20. Manage transportation needs (getting from one place to another).	1	2	3	4	5
21. Sexual activities.	1	2	3	4	5

DISABILITIES OF THE ARM, SHOULDER AND HAND

WORK MODULE (OPTIONAL)

The following questions ask about the impact of your arm, shoulder or hand problem on your ability to work (including homemaking if that is your main work role).

Please indicate what your job/work is: _____

☐ I do not work. (You may skip this section.)

Please circle the number that best describes your physical ability in the past week. Did you have any difficulty:

	NO DIFFICULTY	MILD DIFFICULTY	MODERATE DIFFICULTY	SEVERE DIFFICULTY	UNABLE
1. using your usual technique for your work?	1	2	3	4	5
2. doing your usual work because of arm, shoulder or hand pain?	1	2	3	4	5
3. doing your work as well as you would like?	1	2	3	4	5
4. spending your usual amount of time doing your work?	1	2	3	4	5

SPORTS/PERFORMING ARTS MODULE (OPTIONAL)

The following questions relate to the impact of your arm, shoulder or hand problem on playing your musical instrument or sport or both.

If you play more than one sport or instrument (or play both), please answer with respect to that activity which is most important to you.

Please indicate the sport or instrument which is most important to you: _____

☐ I do not play a sport or an instrument. (You may skip this section.)

Please circle the number that best describes your physical ability in the past week. Did you have any difficulty:

	NO DIFFICULTY	MILD DIFFICULTY	MODERATE DIFFICULTY	SEVERE DIFFICULTY	UNABLE
1. using your usual technique for playing your instrument or sport?	1	2	3	4	5
2. playing your musical instrument or sport because of arm, shoulder or hand pain?	1	2	3	4	5
3. playing your musical instrument or sport as well as you would like?	1	2	3	4	5
4. spending your usual amount of time practising or playing your instrument or sport?	1	2	3	4	5

SCORING THE OPTIONAL MODULES: Add up assigned values for each response; divide by 4 (number of items); subtract 1; multiply by 25.

An optional module score may not be calculated if there are any missing items.



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FEAR AVOIDANCE BELIEFS QUESTIONNAIRE (FABQ)

Purpose: The FABQ was developed by Waddell to investigate fear-avoidance beliefs among LBP patients in the clinical setting.³ This survey can help predict those that have a high pain avoidance behavior. Clinically, these people may need to be supervised more than those that confront their pain.

Scoring: The FABQ consists of 2 subscales, which are reflected in the division of the outcome form into 2 separate sections. The first subscale (items 1-5) is the Physical Activity subscale (FABQPA), and the second subscale (items 6-16) is the Work subscale (FABQW). Interestingly, not all items contribute to the score for each subscale; however the patient should still complete all items as these items were included when the reliability and validity of the scale was initially established. A low FABQW score (less than 19) was one of 5 variables in a clinical prediction rule that increased the probability of success from SI region manipulation in individuals with low back pain.¹ Each subscale is graded separately by summing the responses respective scale items (0 – 6 for each item); for scoring purposes, only 4 of the physical activity scale items are scored (24 possible points) and only 7 of the work items (42 possible points). The method to score each subscale is outlined below. (Note: It is extremely important to ensure all items are completed, as there is no procedure to adjust for incomplete items.)

Scoring the Physical Activity subscale (FABQPA)

Sum items 2, 3, 4, and 5 (the score circled by the patient for these items).

Scoring the Work subscale (FABQW)

Sum items 6, 7, 9, 10, 11, 12, and 15.

Measurement Characteristics: The FABQ has been demonstrated to be valid and reliable in a chronic LBP population³ and appears to be a useful screening tool for identifying acute LBP patients who will not return to work by 4wks.²

References:

1. Flynn T, Fritz J, Whitman J, Wainner R, et al. Clinical Prediction Rule for Classifying Patients with Low Back Pain Likely to Respond to a Manipulation Technique. *Spine* (In Press) 2002.
2. Fritz JM, George SZ, Delitto A. The role of fear-avoidance beliefs in acute low back pain: relationships with current and future disability and work status. *Pain* 2001; 94:7-15.
3. Waddell G, Newton M, Henderson I, Somerville D, Main CJ. A Fear-Avoidance Beliefs Questionnaire (FABQ) and the role of fear-avoidance beliefs in chronic low back pain and disability. *Pain* 1993; 52:157-168

FEAR AVOIDANCE BELIEFS QUESTIONNAIRE (FABQ)

Name: _____

Date: _____

Here are some of the things which other patients have told us about their pain. For each statement please circle any number from 0 to 6 to say how much physical activities such as bending, lifting, walking or driving affect or would affect your back pain.

	COMPLETELY DISAGREE		UNSURE				COMPLETELY AGREE	
1. My pain was caused by physical activity	0	1	2	3	4	5	6	
2. Physical activity makes my pain worse	0	1	2	3	4	5	6	
3. Physical activity might harm my back	0	1	2	3	4	5	6	
4. I should not do physical activities which (might) make my pain worse	0	1	2	3	4	5	6	
5. I cannot do physical activities which (might) make my pain worse	0	1	2	3	4	5	6	

The following statements are about how your normal work affects or would affect your back pain.

	COMPLETELY DISAGREE		UNSURE				COMPLETELY AGREE	
6. My pain was caused by my work or by an accident at work	0	1	2	3	4	5	6	
7. My work aggravated my pain	0	1	2	3	4	5	6	
8. I have a claim for compensation for my pain	0	1	2	3	4	5	6	
9. My work is too heavy for me	0	1	2	3	4	5	6	
10. My work makes or would make my pain worse	0	1	2	3	4	5	6	
11. My work might harm my back	0	1	2	3	4	5	6	
12. I should not do my normal work with my present pain	0	1	2	3	4	5	6	
13. I cannot do my normal work with my present pain	0	1	2	3	4	5	6	
14. I cannot do my normal work until my pain is treated	0	1	2	3	4	5	6	
15. I do not think that I will be back to my normal work within 3 months	0	1	2	3	4	5	6	
16. I do not think that I will ever be able to go back to that work	0	1	2	3	4	5	6	

FUGL-MEYER ASSESSMENT

Research report

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Appendix 1

Scoring sheet for the Fugl-Meyer Assessment, devised from the original paper (Fugl-Meyer *et al*, 1975).

Produced with permission of the publisher, Taylor and Francis. <http://www.tandf.co.uk>

	Score		
1 Shoulder / elbow / forearm			
1.1 Reflex activity			
1.1.1 Flexors (biceps and finger flexors)	0	1	2
1.1.2 Extensors (triceps)	0	1	2
1.2 Flexor synergy – volitional movement within synergy			
1.2.1 Shoulder retraction	0	1	2
1.2.2 Shoulder elevation	0	1	2
1.2.3 Shoulder abduction	0	1	2
1.2.4 Shoulder external rotation	0	1	2
1.2.5 Elbow flexion	0	1	2
1.2.6 Forearm supination	0	1	2
1.3 Extensor synergy – volitional movement within synergy			
1.3.1 Shoulder adduction / internal rotation	0	1	2
1.3.2 Elbow extension	0	1	2
1.3.3 Forearm pronation	0	1	2
1.4 Volitional movement mixing the dynamic flexor and extensor strategies			
1.4.1 Hand on lumbar spine	0	1	2
1.4.2 Shoulder flexion	0	1	2
1.4.3 Forearm pronation / supination	0	1	2
1.5 Volitional movements are performed with little or no synergy dependence			
1.5.1 Shoulder abduction	0	1	2
1.5.2 Shoulder flexion	0	1	2
1.5.3 Forearm pronation-supination	0	1	2
1.6 Normal reflex activity	0	1	2
2 Wrist			
2.1 Wrist stability – elbow 90°	0	1	2
2.2 Wrist flexion/extension – elbow 90°	0	1	2
2.3 Wrist stability – elbow 0°	0	1	2
2.4 Wrist flexion/extension – elbow 0°	0	1	2
2.5 Circumduction	0	1	2
3 Hand			
3.1 Mass flexion	0	1	2
3.2 Mass extension	0	1	2
3.3 Grasp A – distal finger grasp	0	1	2
3.4 Grasp B – thumb adduction grasp	0	1	2
3.5 Grasp C – thumb to index finger grasp	0	1	2
3.6 Grasp D – cylinder grasp	0	1	2
3.7 Grasp E – spherical grasp	0	1	2
4 Co-ordination/speed			
4.1 Tremor	0	1	2
4.2 Dysmetria	0	1	2
4.3 Speed	0	1	2
Upper limb score			

Appendix 2

Manual for the Fugl-Meyer Assessment upper limb section

Produced with permission of the publisher, Taylor and Francis. <http://www.tandf.co.uk>

This appendix is based on the original report published in (and produced with the permission of) *The Scandinavian Journal of Rehabilitation Medicine*.

The starting position for all the items is, unless otherwise stated, with the patient seated on a dining type chair without arms. The patient's forearms and hands should rest on the thighs in pronation. If sitting balance is a concern a Velcro trunk strap may be used for safety.

Instructions should be given to the patient as shown in *italics*. At the same time the examiner should demonstrate the movement. If the patient is unable to follow this, the movement should be modelled on the patient.

Scores are shown in shaded boxes.

Shoulder/elbow/forearm

1.1 Reflex activity



Fig 1: Reflex testing



No activity	0
Reflex activity present	2

1.2 Flexor synergy

Touch your ear with your weaker hand.

The patient may be asked to repeat the movement up to three times to enable observation.

Cannot be performed	0
Detail partly performed	1
Detail is performed faultlessly	2



Fig 2: Flexor synergy position

Manual for the Fugl-Meyer Assessment upper limb section.
Deakin, Hill and Pomeroy (2003) Adapted from
Fugl-Meyer and Jaasko (1976) <http://www.tanf.co.uk>

1.3 Extensor synergy

Starting position is the full flexor synergy (fig 2). The patient may be helped to achieve the starting position.

Move your hand from your ear to your opposite knee.

The patient may be asked to repeat the movement up to three times to enable observation.

Cannot be performed	0
Detail partly performed	1
Detail is performed faultlessly	2



Fig 3: Extensor synergy position

1.4 Volitional movement mixing synergies

1.4.1 Hand on the lumbar spine

Put your hand on your back.

The patient has to move forward on the chair for this item and may be given some support for balance.

Score as previously, for a score of 2 the patient's hand must go higher than the anterior superior iliac spine.

1.4.2 Shoulder flexion 0-90°

Lift your arm straight up, keep your thumb pointing up.

Score as previously, the elbow must remain fully extended for a score of 2.

1.4.3 Forearm pronation/supination

Turn your palm face up and face down.

Starting position elbow actively held at 90°.

Elbow and shoulder position must be maintained to score 1 or 2.

1.5 Volitional movements without synergy

1.5.1 Shoulder abduction 0° to 90°

Lift your arm out to the side.

Score as previously, elbow must be extended and forearm pronated to score 2.

1.5.2 Shoulder flexion 90° to 180°

Examiner may help the patient to achieve the starting position.

Lift your hand towards the ceiling, keep your elbow straight and thumb pointing up.

Score as previously.

1.5.3 Forearm pronation/supination

Shoulder should be between 30° and 90° of flexion.

Turn your palm face up and face down, with your elbow straight.

Score as previously.

1.6 Normal reflex activity

Test only if full marks given in section 5.

Test the three reflexes as in section 1.1.

2 or 3 markedly hyperactive	0
2 lively or 1 hyperactive	1
1 or no lively reflexes	2

2. Wrist

2.1 Wrist stability (elbow 90°)

Apply resistance at 15° dorsiflexion.
The elbow may be supported if needed.
Lift your hand and hold it there, keep your elbow bent.

15° Dorsiflexion cannot be performed	0
Dorsiflexion performed but not against resistance	1
Position can be maintained against slight resistance	2

2.2 Wrist flexion/extension (elbow 90°)

The elbow may be supported if needed.
Lift your hand up and down, keep your elbow bent.

No voluntary movement	0
Voluntary movement but not through total passive range	1
Movement through total passive range	2

2.3 Wrist stability (elbow 90°)

Apply resistance at 15° dorsiflexion. The elbow may be supported if needed.
Lift your hand, hold the position with your arm straight.

15° dorsiflexion cannot be performed	0
Dorsiflexion performed but not against resistance	1
Position can be maintained against slight resistance	2

2.4 Wrist flexion/extension (elbow 90°)

The elbow may be supported if needed.
Lift your hand up and down with your arm straight.

No voluntary movement	0
Voluntary movement but not through total passive range	1
Movement through total passive range	2

2.5 Wrist circumduction

Move your hand around, keep your elbow bent and your arm still.

Movement cannot be performed	0
Jerky motion or incomplete circumduction	1
Detail performed fully and adequately	2

3. Hand

For all the items the examiner may support the patient's elbow at 90°.

3.1 Mass flexion

Make a fist.

No flexion	0
Some but not full active finger extension	1
Full active flexion (compared to unaffected hand)	2

3.2 Mass extension

Stretch out your hand.

No extension occurs	0
Can release mass flexion grasp	1
Full active extension (compared to unaffected hand)	2

3.3 Distal finger grasp

Grip my finger – hold it.

Required position cannot be achieved	0
Grasp is weak	1
Grasp maintained against resistance	2



Fig 4: Distal finger grasp position

3.4 Thumb adduction grasp*Grip the paper between your thumb and hand.*

Function cannot be performed	0
Paper held between thumb and index metacarpal can be kept in place but not against a tug	1
Paper is held well against a tug	2

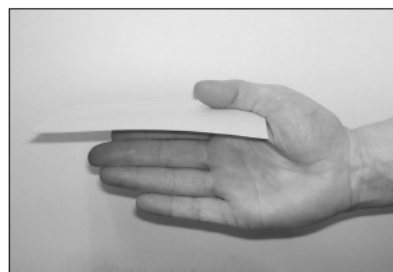


Fig 5: Thumb adduction grasp position

3.5 Thumb to index finger grasp*Hold the pencil – keep it there.*

Pencil cannot be held	0
Pencil can be held but not against a tug	1
Pencil is held against a tug	2



Fig 6: Pencil hold

3.6 Cylinder grasp

Plastic mug diameter 8 cm.

Hold the mug – keep it there.

Mug cannot be held	0
Mug can be held but not against a tug	1
Mug is held against a tug	2

3.7 Spherical grasp

Tennis ball.

Hold the ball – keep it there.

Ball cannot be held	0
Ball can be held but not against a tug	1
Ball is held against a tug	2

4. Co-ordination and speed

Finger to nose test: The patient is blindfolded. He first performs the test with the non-paretic side then the paretic side. Each test is timed.

*Touch your finger to your nose five times as quickly as you can.***4.1 Tremor**

No tremor	2
Slight tremor	1
Marked tremor	0

4.2 Dysmetria

(error in endpoint destination)

No dysmetria	
Slight dysmetria	1
Marked dysmetria	0

4.3 Speed

Less than 2 seconds difference between sides	2
2-5 seconds difference	1
At least 6 seconds difference	0

FUNCTIONAL REACH TEST

Directions for Functional Reach Test

Using a yardstick mounted on the wall at shoulder height, ask the subject to position body close to, but not touching the wall with arm outstretched and hand fisted. Take note of the starting position by determining what number the MCP joints line up with on the rule. Have the subject reach as far forward as possible in a plane parallel with the measuring device. Instruct subject to "Reach as far forward as you can go without taking a step." They are free to use various reaching strategies. Take note of the end position of the MCP joints against the ruler, and record the difference between the starting and end position numbers. If the feet move, that trial must be discarded and repeated. Guard the subject as the task is performed to prevent a fall. Subjects are given two practice trials, then their performance on an additional three trials is recorded and averaged. Scores less than 6 or 7 indicate limited functional balance. Most healthy individuals with adequate function balance can reach 10 inches or more.

(Duncan, et al., 1990)

Gait Speed

“Figure 3 displays a suggested reliable, inexpensive method to collect WS by using the 10 meter (m) walk test. It requires a 20m straight path, with 5m for acceleration, 10m for steady-state walking, and 5m for deceleration. Markers are placed at the 5 and 15m positions along the path. The patient begins to walk “at a comfortable pace” at one end of the path, and continues walking until he or she reaches the other end. The Physical Therapist uses a stopwatch to determine how much time it takes for the patient to traverse the 10m center of the path, starting the stopwatch as soon as the patient’s limb crosses the first marker and stopping the stopwatch as soon as the patient’s limb crosses the second marker. If a full 20m walkway is not available, shorter distances can be used, as long as there is adequate room for acceleration and deceleration (e.g., 5ft acceleration, 10ft. steady state, 5ft. deceleration).”

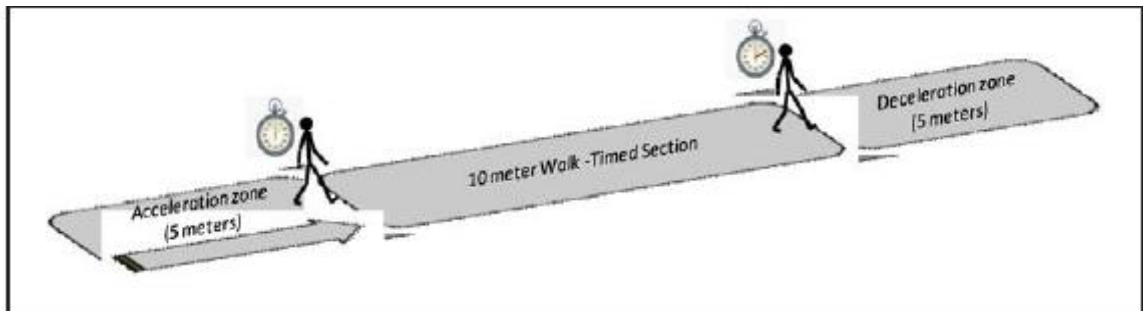


Figure 3. Suggested methods for collecting 10 meter walk test times.

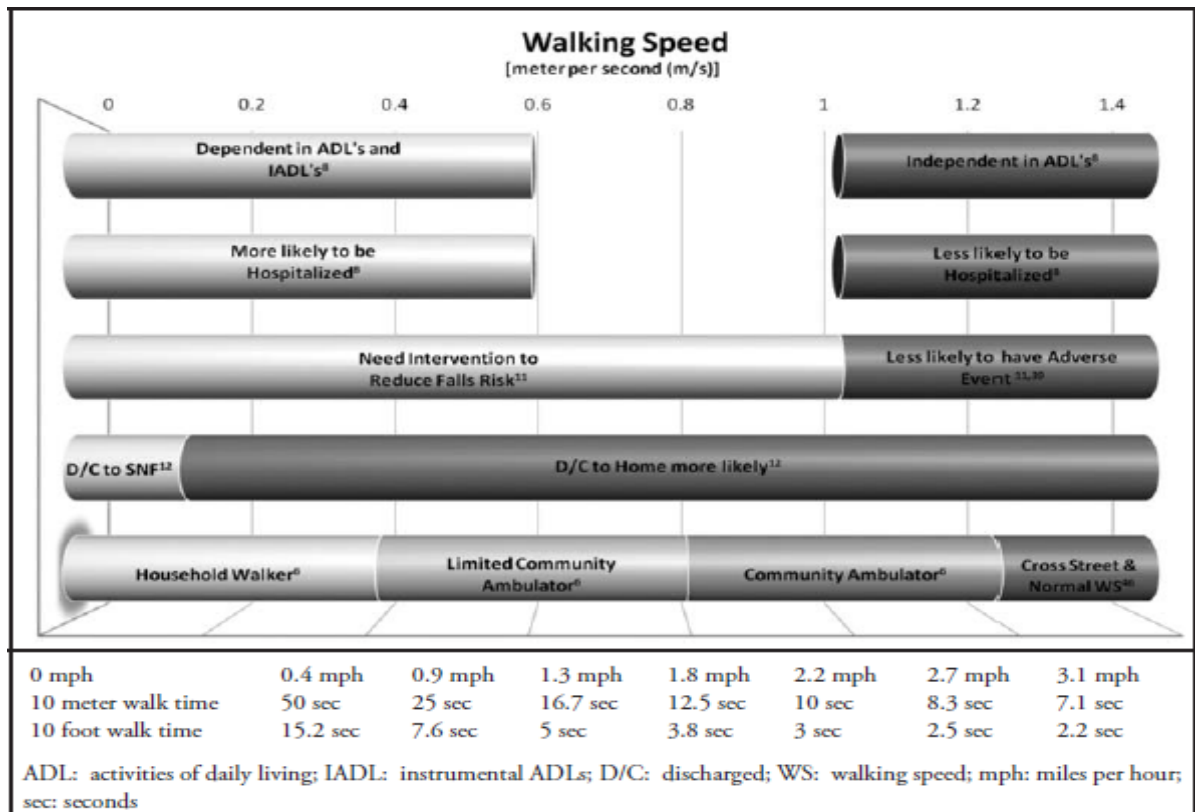


Figure 1. A collection of walking speed times that are linked to dependence, hospitalization, rehabilitation needs, discharge locations, and ambulation category.

Fritz, Stacy and Lusardi, Michelle; “White Paper: Walking Speed: the Sixth Vital Sign”; *Journal of Geriatric Physical Therapy*; Vol. 32;2:09

Get-up and Go Test

Instructions:

Ask the patient to perform the following series of maneuvers:

1. Sit comfortably in a straight-backed chair.
2. Rise from the chair.
3. Stand still momentarily.
4. Walk a short distance (approximately 3 meters).
5. Turn around.
6. Walk back to the chair.
7. Turn around.
8. Sit down in the chair.

Scoring:

Observe the patient's movements for any deviation from a confident, normal performance. Use the following scale:

- 1 = Normal
- 2 = Very slightly abnormal
- 3 = Mildly abnormal
- 4 = Moderately abnormal
- 5 = Severely abnormal

"Normal" indicates that the patient gave no evidence of being at risk of falling during the test or at any other time. "Severely abnormal" indicates that the patient appeared at risk of falling during the test. Intermediate grades reflect the presence of any of the following as indicators of the possibility of falling: undue slowness, hesitancy, abnormal movements of the trunk or upper limbs, staggering, stumbling.

A patient with a score of 3 or more on the Get-up and Go Test is at risk of falling.

Source:

Mathias S, Nayak USL, Isaacs B. Balance in elderly patients: the "get-up and go" test. *Arch Phys Med Rehabil.* 1986;67:387-389.

LOWER EXTREMITY FUNCTIONAL SCALE (LEFS)

The Lower Extremity Functional Scale

We are interested in knowing whether you are having any difficulty at all with the activities listed below because of your lower limb problem for which you are currently seeking attention. Please provide an answer for each activity.

Today, do you or would you have any difficulty at all with:

	Activities	Extreme Difficulty or Unable to Perform Activity	Quite a Bit of Difficulty	Moderate Difficulty	A Little Bit of Difficulty	No Difficulty
1	Any of your usual work, housework, or school activities.	0	1	2	3	4
2	Your usual hobbies, recreational or sporting activities.	0	1	2	3	4
3	Getting into or out of the bath.	0	1	2	3	4
4	Walking between rooms.	0	1	2	3	4
5	Putting on your shoes or socks.	0	1	2	3	4
6	Squatting.	0	1	2	3	4
7	Lifting an object, like a bag of groceries from the floor.	0	1	2	3	4
8	Performing light activities around your home.	0	1	2	3	4
9	Performing heavy activities around your home.	0	1	2	3	4
10	Getting into or out of a car.	0	1	2	3	4
11	Walking 2 blocks.	0	1	2	3	4
12	Walking a mile.	0	1	2	3	4
13	Going up or down 10 stairs (about 1 flight of stairs).	0	1	2	3	4
14	Standing for 1 hour.	0	1	2	3	4
15	Sitting for 1 hour.	0	1	2	3	4
16	Running on even ground.	0	1	2	3	4
17	Running on uneven ground.	0	1	2	3	4
18	Making sharp turns while running fast.	0	1	2	3	4
19	Hopping.	0	1	2	3	4
20	Rolling over in bed.	0	1	2	3	4
Column Totals:						

Minimum Level of Detectable Change (90% Confidence): 9 points SCORE: ____ / 80

Source: Binkley et al (1999): The Lower Extremity Functional Scale (LEFS): Scale development, measurement properties, and clinical application. Physical Therapy. 79:371-383.

Lysholm Knee Scale

Limp (5 Points)

None 5 _____
Slight or periodic 3 _____
Severe and constant 0 _____

Support (5 Points)

Full Support 5 _____
Cane or crutch 3 _____
Weight Bearing impossible 0 _____

Stair Climbing (5 points)

No problems 5 _____
Slightly impaired 3 _____
One step at a time 2 _____
Unable 0 _____

Squatting (5 Points)

No problem 5 _____
Lightly impaired 3 _____
Not past 90 degrees 2 _____
Unable 0 _____

TOTAL

Walking, Running and Jumping

Instability (30 Points)

Never giving way 30 _____
Rarely gives way except for athletic or other severe exertion 25 _____
Gives way frequently during athletic events or severe exertion 0 _____
Occasionally in daily activities 10 _____
Often in daily activities 5 _____
Every step 0 _____

Swelling (10 Points)

None 10 _____
With giving way 7 _____
On severe exertion 5 _____
On ordinary exertion 2 _____
Constant 0 _____

Pain (30 Points)

None 30 _____
Inconstant and slight during severe exertion 25 _____
Marked on giving way 20 _____
Marked during severe exertion 15 _____
Marked on or after walking more than 1 ¼ miles 10 _____
Marked on or after walking less than 1 ¼ miles 5 _____
Constant and severe 0 _____

Atrophy of thigh (5 Points)

None 5 _____
1-2 cm 3 _____
> 2 cm 0 _____

TOTAL

The Neck Disability Index

Patient name: _____ File# _____ Date: _____

Please read instructions:

This questionnaire has been designed to give the doctor information as to how your neck pain has affected your ability to manage everyday life. Please answer every section and mark in each section only the ONE box that applies to you. We realize that you may consider that two of the statements in any one section relate to you, but please just mark the box that most closely describes your problem.

SECTION 1-PAIN INTENSITY

- ☐ I have no pain at the moment.
- ☐ The pain is very mild at the moment.
- ☐ The pain is moderate at the moment.
- ☐ The pain is fairly severe at the moment.
- ☐ The pain is very severe at the moment.
- ☐ The pain is the worst imaginable at the moment.

SECTION 2-PERSONAL CARE (Washing, Dressing, etc.)

- ☐ I can look after myself normally, without causing extra pain.
- ☐ I can look after myself normally, but it causes extra pain.
- ☐ It is painful to look after myself and I am slow and careful.
- ☐ I need some help, but manage most of my personal care.
- ☐ I need help every day in most aspects of self care.
- ☐ I do not get dressed; I wash with difficulty and stay in bed.

SECTION 3-LIFTING

- ☐ I can lift heavy weights without extra pain.
- ☐ I can lift heavy weights, but it gives extra pain.
- ☐ Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently positioned, for example, on a table.
- ☐ Pain prevents me from lifting heavy weights off the floor, but I can manage light to medium weights if they are conveniently positioned.
- ☐ I can lift very light weights.
- ☐ I cannot lift or carry anything at all.

SECTION 4-READING

- ☐ I can read as much as I want to, with no pain in my neck.
- ☐ I can read as much as I want to, with slight pain in my neck.
- ☐ I can read as much as I want to, with moderate pain in my neck.
- ☐ I can't read as much as I want, because of moderate pain in my neck.
- ☐ I can hardly read at all, because of severe pain in my neck.
- ☐ I cannot read at all.

SECTION 5-HEADACHES

- ☐ I have no headaches at all.
- ☐ I have slight headaches that come infrequently.
- ☐ I have moderate headaches that come infrequently.
- ☐ I have moderate headaches that come frequently.
- ☐ I have severe headaches that come frequently.
- ☐ I have headaches almost all the time.

SECTION 6-CONCENTRATION

- ☐ I can concentrate fully when I want to, with no difficulty.
- ☐ I can concentrate fully when I want to, with slight difficulty.
- ☐ I have a fair degree of difficulty in concentrating when I want to.
- ☐ I have a lot of difficulty in concentrating when I want to.
- ☐ I have a great deal of difficulty in concentrating when I want to.
- ☐ I cannot concentrate at all.

SECTION 7-WORK

- ☐ I can do as much work as I want to.
- ☐ I can do my usual work, but no more.
- ☐ I can do most of my usual work, but no more.
- ☐ I cannot do my usual work.
- ☐ I can hardly do any work at all.
- ☐ I can't do any work at all.

SECTION 8-DRIVING

- ☐ I can drive my car without any neck pain.
- ☐ I can drive my car as long as I want, with slight pain in my neck.
- ☐ I can drive my car as long as I want, with moderate pain in my neck.
- ☐ I can't drive my car as long as I want, because of moderate pain in my neck.
- ☐ I can hardly drive at all, because of severe pain in my neck.
- ☐ I can't drive my car at all.

SECTION 9-SLEEPING

- ☐ I have no trouble sleeping.
- ☐ My sleep is slightly disturbed (less than 1 hr sleepless).
- ☐ My sleep is mildly disturbed (1-2 hrs sleepless).
- ☐ My sleep is moderately disturbed (2-3 hrs sleepless).
- ☐ My sleep is greatly disturbed (3-5 hrs sleepless).
- ☐ My sleep is completely disturbed (5-7 hrs sleepless).

SECTION 10-RECREATION

- ☐ I am able to engage in all my recreation activities, with no neck pain at all.
- ☐ I am able to engage in all my recreation activities, with some neck pain at all.
- ☐ I am able to engage in most, but not all, of my usual recreation activities, because of pain in my neck.
- ☐ I am able to engage in few of my recreation activities, because of pain in my neck.
- ☐ I can hardly do any recreation activities, because of pain in my neck.
- ☐ I can't do any recreation activities at all.

Instructions:

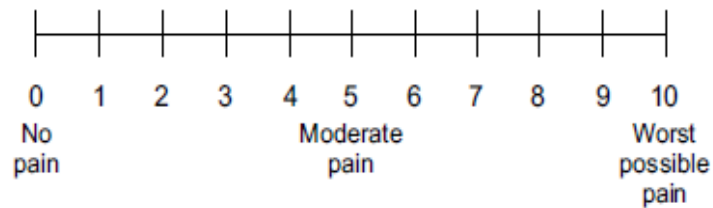
1. The NDI is scored in the same way as the Oswestry Disability Index.

2. Using this system, a score of 10-28% (i.e., 5-14 points) is considered by the authors to constitute mild disability; 30-48% is moderate; 50-68% is severe; 72% or more is complete.

Numeric Pain Rating Scale
and
Pain Intensity-Numerical Rating Scale

Patient Name: _____ Date: _____

0-10 Numeric Pain Intensity Scale*



*If used as a graphic rating scale, a 10-cm baseline is recommended.

From: Acute Pain Management: Operative or Medical Procedures and Trauma, Clinical Practice Guideline No. 1. AHCPR Publication No. 92-0032; February 1992. Agency for Healthcare Research & Quality, Rockville, MD; pages 116-117.

Oswestry Disability Questionnaire

This questionnaire has been designed to give us information as to how your back or leg pain is affecting your ability to manage in everyday life. Please answer by checking **one box in each section** for the statement which best applies to you. We realise you may consider that two or more statements in any one section apply but please just shade out the spot that indicates the statement **which most clearly describes your problem**.

Section 1: Pain Intensity

- ☐ I have no pain at the moment
- ☐ The pain is very mild at the moment
- ☐ The pain is moderate at the moment
- ☐ The pain is fairly severe at the moment
- ☐ The pain is very severe at the moment
- ☐ The pain is the worst imaginable at the moment

Section 2: Personal Care (eg. washing, dressing)

- ☐ I can look after myself normally without causing extra pain
- ☐ I can look after myself normally but it causes extra pain
- ☐ It is painful to look after myself and I am slow and careful
- ☐ I need some help but can manage most of my personal care
- ☐ I need help every day in most aspects of self-care
- ☐ I do not get dressed, wash with difficulty and stay in bed

Section 3: Lifting

- ☐ I can lift heavy weights without extra pain
- ☐ I can lift heavy weights but it gives me extra pain
- ☐ Pain prevents me lifting heavy weights off the floor but I can manage if they are conveniently placed eg. on a table
- ☐ Pain prevents me lifting heavy weights but I can manage light to medium weights if they are conveniently positioned
- ☐ I can only lift very light weights
- ☐ I cannot lift or carry anything

Section 4: Walking*

- ☐ Pain does not prevent me walking any distance
- ☐ Pain prevents me from walking more than 2 kilometres
- ☐ Pain prevents me from walking more than 1 kilometre
- ☐ Pain prevents me from walking more than 500 metres
- ☐ I can only walk using a stick or crutches
- ☐ I am in bed most of the time

Section 5: Sitting

- ☐ I can sit in any chair as long as I like
- ☐ I can only sit in my favourite chair as long as I like
- ☐ Pain prevents me sitting more than one hour
- ☐ Pain prevents me from sitting more than 30 minutes
- ☐ Pain prevents me from sitting more than 10 minutes
- ☐ Pain prevents me from sitting at all

Section 6: Standing

- ☐ I can stand as long as I want without extra pain
- ☐ I can stand as long as I want but it gives me extra pain
- ☐ Pain prevents me from standing for more than 1 hour
- ☐ Pain prevents me from standing for more than 30 minutes
- ☐ Pain prevents me from standing for more than 10 minutes
- ☐ Pain prevents me from standing at all

Section 7: Sleeping

- ☐ My sleep is never disturbed by pain
- ☐ My sleep is occasionally disturbed by pain
- ☐ Because of pain I have less than 6 hours sleep
- ☐ Because of pain I have less than 4 hours sleep
- ☐ Because of pain I have less than 2 hours sleep
- ☐ Pain prevents me from sleeping at all

Section 8: Sex Life (if applicable)

- ☐ My sex life is normal and causes no extra pain
- ☐ My sex life is normal but causes some extra pain
- ☐ My sex life is nearly normal but is very painful
- ☐ My sex life is severely restricted by pain
- ☐ My sex life is nearly absent because of pain
- ☐ Pain prevents any sex life at all

Section 9: Social Life

- ☐ My social life is normal and gives me no extra pain
- ☐ My social life is normal but increases the degree of pain
- ☐ Pain has no significant effect on my social life apart from limiting my more energetic interests e.g. sport
- ☐ Pain has restricted my social life and I do not go out as often
- ☐ Pain has restricted my social life to my home
- ☐ I have no social life because of pain

Section 10: Travelling

- ☐ I can travel anywhere without pain
- ☐ I can travel anywhere but it gives me extra pain
- ☐ Pain is bad but I manage journeys over two hours
- ☐ Pain restricts me to journeys of less than one hour
- ☐ Pain restricts me to short necessary journeys under 30 minutes
- ☐ Pain prevents me from travelling except to receive treatment

Score: / x 100 = %

Scoring: For each section the total possible score is 5; if the first statement is marked the section score = 0, if the last statement is marked it = 5. If all ten sections are completed the score is calculated as follows:

Example: $\frac{16 \text{ (total scored)}}{50 \text{ (total possible score)}} \times 100 = 32\%$

If one section is missed or not applicable the score is calculated: $\frac{16 \text{ (total scored)}}{45 \text{ (total possible score)}} \times 100 = 35.5\%$

Minimum Detectable Change (90% confidence): 10%points (Change of less than this may be attributable to error in the measurement)

Source: Fairbank JCT & Pynsent, PB (2000) The Oswestry Disability Index. *Spine*, 25(22):2940-2953.
Davidson M & Keating J (2001) A comparison of five low back disability questionnaires: reliability and responsiveness. *Physical Therapy* 2002;82:8-24.

*Note: Distances of 1mile, ½ mile and 100 yards have been replaced by metric distances in the Walking section.

PENN SHOULDER SCORE

GENESYS
THERAPY SERVICES

Name: _____

DOB:

The Penn Shoulder Score, Part 1: Pain and Satisfaction Subscales

[illegible]

Name: _____

DOB: _____

The Penn Shoulder Score: Function Subscale

Please circle the number that best describes the level of difficulty you might have performing each activity		No difficulty	Some difficulty	Much difficulty	Can't do at all	Did not do before injury
1.	Reach the small of your back to tuck in your shirt with your hand	3	2	1	0	X
2.	Wash the middle of your back/hook bra	3	2	1	0	X
3.	Perform necessary toileting activities	3	2	1	0	X
4.	Wash the back of opposite shoulder	3	2	1	0	X
5.	Comb hair	3	2	1	0	X
6.	Place hand behind head with elbow held straight out to the side	3	2	1	0	X
7.	Dress self (including put on coat and pull shirt off overhead)	3	2	1	0	X
8.	Sleep on affected side	3	2	1	0	X
9.	Open a door with affected arm	3	2	1	0	X
10.	Carry a bag of groceries with affected arm	3	2	1	0	X
11.	Carry a briefcase/small suitcase with affected arm	3	2	1	0	X
12.	Place a soup can (1-2 lb) on a shelf at shoulder level without bending elbow	3	2	1	0	X
13.	Place a one gallon container (8-10 lb) on a shelf at shoulder level without bending elbow	3	2	1	0	X
14.	Reach a shelf above your head without bending your elbow	3	2	1	0	X
15.	Place a soup can (1-2 lb) on a shelf overhead without bending your elbow	3	2	1	0	X
16.	Place a one gallon container (8-10 lb) on a shelf overhead without bending your elbow	3	2	1	0	X
17.	Perform usual sport/hobby	3	2	1	0	X
18.	Perform household chores (cleaning, laundry, cooking)	3	2	1	0	X
19.	Throw overhand/swim/overhead racquet sports (circle all that apply to you)	3	2	1	0	X
20.	Work full-time at your regular job	3	2	1	0	X

SCORING

Total of columns = ____ (a)

Number of Xs x 3 = ____ (b), 60 - ____ (b) = ____ (c) (if no Xs are circled, function score = total of columns)

Function Score = ____ (a) ÷ ____ (c) = ____ × 60 ____ / 60

PERFORMANCE ORIENTED MOBILITY ASSESSMENT, **Tinetti (POMA)**

Tinetti Assessment Tool: Description

Population:	Adult population, elderly patients
Description:	The Tinetti Assessment Tool is a simple, easily administered test that measures a patient's gait and balance. The test is scored on the patient's ability to perform specific tasks.
Mode of Administration:	The Tinetti Assessment Tool is a task performance exam.
Time to Complete:	10 to 15 minutes
Time to Score:	Time to score is included in time to complete
Scoring:	Scoring of the Tinetti Assessment Tool is done on a three point ordinal scale with a range of 0 to 2. A score of 0 represents the most impairment, while a 2 would represent independence of the patient. The individual scores are then combined to form three measures; an overall gait assessment score, an overall balance assessment score, and a gait and balance score.
Interpretation:	The maximum score for the gait component is 12 points. The maximum score for the balance component is 16 points. The maximum total score is 28 points. In general, patients who score below 19 are at a high risk for falls. Patients who score in the range of 19-24 indicate that the patient has a risk for falls.
Reliability:	Interrater reliability was measured in a study of 15 patients by having a physician and a nurse test the patients at the same time. Agreement was found on over 85% of the items and the items that differed never did so by more than 10%. These results indicate that the Tinetti Assessment Tool has good interrater reliability.
Validity:	Not reported
References:	<p>Lewis C. Balance, Gait Test Proves Simple Yet useful. <i>P.T. Bulletin</i> 1993; 2/10:9 & 40.</p> <p>Tinetti ME. Performance-Oriented Assessment of Mobility Problems in Elderly Patients. <i>JAGS</i> 1986; 34:119-126.</p>

Tinetti Assessment Tool: Balance

Patient's Name: _____

Date: _____

Location: _____

Rater: _____

Initial Instructions: Subject is seated in a hard, armless chair. The following maneuvers are tested.

Task	Description of Balance	Possible	Score
1. Sitting Balance	Leans or slides in chair Steady, safe	= 0 = 1	
2. Arises	Unable without help Able, uses arms to help Able without using arms	= 0 = 1 = 2	
3. Attempts to arise	Unable without help Able, requires > 1 attempt Able to rise, 1 attempt	= 0 = 1 = 2	
4. Immediate standing balance (first 5 seconds)	Unsteady (swaggers, moves feet, trunk sway) Steady but uses walker or other support Steady without walker or other support	= 0 = 1 = 2	
5. Standing Balance	Unsteady Steady but wide stance (medial heels > 4 inches apart) and uses cane or other support Narrow stance without support	= 0 = 1 = 2	
6. Nudged (subject at max position with feet as close together as possible, examiner pushes lightly on subject's sternum with palm of hand 3 times.	Begins to fall Staggers, grabs, catches self Steady	= 0 = 1 = 2	
7. Eyes closed (at maximum position #6)	Unsteady Steady	= 0 = 1	
8. Turning 360 degrees	Discontinuous steps Continuous steps Unsteady (grabs, swaggers) Steady	= 0 = 1 = 0 = 1	
9. Sitting Down	Unsafe (misjudged distance, falls into chair) Uses arms or not a smooth motion Safe, smooth motion	= 0 = 1 = 2	
Balance Score:			

Tinetti Assessment Tool: Gait

Patient's Name: _____

Date: _____

Location: _____

Rater: _____

Initial Instructions: Subject stands with examiner, walks down hallway or across the room, first at "usual" pace, then back at "rapid, but safe" pace (using usual walking aids).

Task	Description of Gait	Possible	Score
10. Initiation of gait (immediately after told to "go")	Any hesitancy or multiple attempts to start No hesitancy	= 0 = 1	
11. Step length and height	a. Right swing foot does not pass left stance foot with step b. Right foot passes left stance foot c. Right foot does not clear floor completely with step d. Right foot completely clears floor e. Left swing foot does not pass right stance foot with step f. Left foot passes right stance foot g. Left foot does not clear floor completely with step h. Left foot completely clears floor	= 0 = 1 = 0 = 1 = 0 = 1 = 0 = 1	
12. Step Symmetry	Right and left step length not equal (estimate) Right and left step appear equal	= 0 = 1	
13. Step Continuity	Stopping or discontinuity between steps Steps appear continuous	= 0 = 1	
14. Path (estimated in relation to floor tiles, 12-inch diameter; observe excursion of 1 foot over about 10 feet of the course).	Marked deviation Mild/moderate deviation or uses walking aid Straight without walking aid	= 0 = 1 = 2	
15. Trunk	Marked sway or uses walking aid No sway but flexion of knees or back, or spreads arms out while walking No sway, no flexion, no use of arms, and no use of walking aid	= 0 = 1 = 2	
16. Walking Stance	Heels apart Heels almost touching while walking	= 0 = 1	
Gait Score:			
Balance + Gait Score:			

QUEBEC BACK PAIN DISABILITY SCALE

The Quebec Back Pain Disability Scale

This questionnaire is about the way your back pain is affecting your daily life. People with back problems may find it difficult to perform some of their daily activities. We would like to know if you find it difficult to perform any of the activities listed below, because of your back. For each activity there is a scale of 0 to 5. Please choose one response option for each activity (do not skip any activities) and circle the corresponding number.

Today, do you find it difficult to perform the following activities because of your back?

		0 Not difficult at all	1 Minimally difficult	2 Somewhat difficult	3 Fairly difficult	4 Very difficult	5 Unable to do
1	Get out of bed	0	1	2	3	4	5
2	Sleep through the night	0	1	2	3	4	5
3	Turn over in bed	0	1	2	3	4	5
4	Ride in a car	0	1	2	3	4	5
5	Stand up for 20-30 minutes	0	1	2	3	4	5
6	Sit in a chair for several hours	0	1	2	3	4	5
7	Climb one flight of stairs	0	1	2	3	4	5
8	Walk a few blocks (300-400 m)	0	1	2	3	4	5
9	Walk several kilometres	0	1	2	3	4	5
10	Reach up to high shelves	0	1	2	3	4	5
11	Throw a ball	0	1	2	3	4	5
12	Run one block (about 100m)	0	1	2	3	4	5
13	Take food out of the refrigerator	0	1	2	3	4	5
14	Make your bed	0	1	2	3	4	5
15	Put on socks (pantyhose)	0	1	2	3	4	5
16	Bend over to clean the bathtub	0	1	2	3	4	5
17	Move a chair	0	1	2	3	4	5
18	Pull or push heavy doors	0	1	2	3	4	5
19	Carry two bags of groceries	0	1	2	3	4	5
20	Lift and carry a heavy suitcase	0	1	2	3	4	5

Add the numbers for a total score: _____

Minimum detectable change (90% confidence) 15 points

Source: Kopec, JA, Esdaile, JM, Abrahamowicz, M., Abenhaim, L, Wood-Dauphinee, S, Lamping, DL & Williams JI. (1995). The Quebec Back Pain Disability Scale. Spine, 20 (3), 341-352. Reproduced with permission of the publisher.
MDC₉₀: Davidson, M. & Keating, J.L. (2002). A comparison of five low back disability questionnaires: Reliability and responsiveness. Physical Therapy, 82 (1), 8- 24.

ROLAND-MORRIS QUESTIONNAIRE

RDQ

Name: _____ Date: _____

Age: _____ Score: _____

When your back hurts, you may find it difficult to do some of the things you normally do.

Mark only the sentences that describe you lately....

1. ☐ I stay at home most of the time because of my back.
2. ☐ I walk more slowly than usual because of my back.
3. ☐ Because of my back, I am not doing any jobs that I usually do around the house.
4. ☐ Because of my back, I use a handrail to get upstairs.
5. ☐ Because of my back, I lie down to rest more often.
6. ☐ Because of my back, I have to hold onto something to get out of an easy chair.
7. ☐ Because of my back, I try to get other people to do things for me.
8. ☐ I get dressed more slowly than usual because of my back.
9. ☐ I stand up only for short periods of time because of my back.
10. ☐ Because of my back, I try not to bend or kneel down.
11. ☐ I find it difficult to get out of a chair because of my back.
12. ☐ My back or leg is painful almost all of the time.
13. ☐ I find it difficult to turn over in bed because of my back.
14. ☐ I have trouble putting on my socks (or stockings) because of pain in my back.
15. ☐ I sleep less well because of my back.
16. ☐ I avoid heavy jobs around the house because of my back.
17. ☐ Because of back pain, I am more irritable and bad tempered with people than usual.
18. ☐ Because of my back, I go upstairs more slowly than usual.

Roland Morris Disability Questionnaire

Scoring: **Instructions for Roland-Morris :**

- ✖ The patient is instructed to put a mark next to each appropriate statement.
- ✖ The total number of marked statements are added by the clinician. Unlike the authors of the Oswestry Disability Questionnaire, Roland and Morris did not provide descriptions of the varying degrees of disability (e.g. 40%-60% is severe disability).
- ✖ Clinical improvements over time can be graded based on the analysis of serial questionnaire scores. If, for example, at the beginning of treatment, a patient's score was 12 and, at the conclusion of treatment, her score was 2 (10 points of improvement), we would calculate an 83% $(10/12 \times 100)$ improvement.

References

1. Deyo RA, Battie M, Beurskens AJ, Bombardier C, Croft P, Koes B, et al. Outcome measures for low back pain research. *Spine* 1998;23:2003-2013.
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4. Jensen MP, Strom SE, Turner JA, Romano JM. Validity of the Sickness Impact Profile Roland scale as a measure of dysfunction in chronic pain patients. *Pain* 1992;50:157-162.
5. Patrick DL, Deyo RA, Atlas SJ, Singer DE, Chapin A, Keller RB. Assessing health related quality of life in patients with sciatica. *Spine* 1995;20:1899-909.
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8. Baker CD, Pynsent PB, Fairbank JCT. The Oswestry Disability Index revisited: its reliability, repeatability and validity, and a comparison with the St. Thomas's Disability Index. In: Roland MO, Jenner JR, eds. *Back Pain: New Approaches to Education and Rehabilitation*. Manchester University Press, 1989:174-86.
9. Stratford PW, Binkley JM. Measurement properties of the RM 18: a modified version of the Roland-Morris disability scale. *Spine* 1997;22:2416-2421.
10. CareTrak outcomes software. Grand Rapids, MN; (800) 393-7255, www.caretrak-outcomes.com.

ROMBERG TEST

The Romberg Test and Sharpened Romberg Test are tests of static balance that measure the ability to maintain balance with a narrowed base of support.

The *Romberg Test* is performed with feet together and eyes open for 60 seconds and with feet together and eyes closed for 60 seconds.

The *Sharpened Romberg Test* is performed in a tandem standing position, with the dominant foot behind the non-dominant foot for 60 seconds with eyes open and for 60 seconds with eyes closed.

Timing starts after the subject has assumed the proper position and is stopped if the subject moves his or her feet from the proper position, opens his or her eyes on the eyes-closed trials, or when the maximum balance time of 60 seconds is reached. Subjects may be given assistance to assume the test position.

Up to three trials may be performed if the maximum balance time is not reached in either of the first 2 trials. Upper-extremity use is not controlled during testing.

(Steffan and Seney, 2008).

36-ITEM SHORT FORM HEALTH SURVEY (SF-36)

RAND 36-Item Short Form Health Survey (SF-36) 1.0 Questionnaire Items

This tool was developed at RAND Health as part of the Medical Outcomes Study.
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Click [HERE](#) to access SF-36 scoring tool.

Question #	Question	Answer	Score (for MD use)
Example	In general, would you say your health is:		
	Excellent (1)		
	Very good (2)		
	Good (3)		
	Fair (4)	4	25
	Poor (5)		

1	In general, would you say your health is:		
	Excellent (1)		
	Very good (2)		
	Good (3)		
	Fair (4)		
	Poor (5)		
2	Compared to one year ago, how would you rate your health in general now?		
	Much better now than one year ago (1)		
	Somewhat better now than one year ago (2)		
	About the same (3)		
	Somewhat worse now than one year ago (4)		
	Much worse now than one year ago (5)		

Question #	Question	Answer	Score (for MD use)
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The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

3	Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
4	Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
5	Lifting or carrying groceries Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
6	Climbing several flights of stairs Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
7	Climbing one flight of stairs Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
8	Bending, kneeling, or stooping Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		

Question #	Question	Answer	Score (for MD use)
9	Walking more than a mile Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
10	Walking several blocks Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
11	Walking one block Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
12	Bathing or dressing yourself Yes, Limited a Lot (1) Yes, Limited a Little (2) No, Not limited at All (3)		
During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?			
13	Cut down the amount of time you spent on work or other activities Yes (1) No (2)		
14	Accomplished less than you would like Yes (1) No (2)		
15	Were limited in the kind of work or other activities Yes (1) No (2)		

Question #	Question	Answer	Score (for MD use)
16	Had difficulty performing the work or other activities (for example, it took extra effort) Yes (1) No (2)		

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

17	Cut down the amount of time you spent on work or other activities Yes (1) No (2)		
18	Accomplished less than you would like Yes (1) No (2)		
19	Didn't do work or other activities as carefully as usual Yes (1) No (2)		
20	During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups? Not at all (1) Slightly (2) Moderately (3) Quite a bit (4) Extremely (5)		

Question #	Question	Answer	Score (for MD use)
21	<p>How much bodily pain have you had during the past 4 weeks?</p> <p>None (1) Very mild (2) Mild (3) Moderate (4) Severe (5) Very severe(6)</p>		
22	<p>During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?</p> <p>Not at all (1) Slightly (2) Moderately (3) Quite a bit (4) Extremely (5)</p>		
	<p>These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling.</p>		
23	<p>Did you feel full of pep?</p> <p>All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)</p>		

Question #	Question	Answer	Score (for MD use)
24	<p>Have you been a very nervous person?</p> <p>All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)</p>		
25	<p>Have you felt so down in the dumps that nothing could cheer you up?</p> <p>All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)</p>		
26	<p>Have you felt calm and peaceful?</p> <p>All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)</p>		

Question #	Question	Answer	Score (for MD use)
27	Did you have a lot of energy? All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)		
28	Have you felt downhearted and blue? All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)		
29	Did you feel worn out? All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)		
30	Have you been a happy person? All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)		

Question #	Question	Answer	Score (for MD use)
31	Did you feel tired? All of the Time (1) Most of the Time (2) A Good Bit of the Time (3) Some of the Time (4) A Little of the Time (5) None of the Time (6)		
32	During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)? All of the time (1) Most of the time (2) Some of the time (3) A little of the time (4)		
How TRUE or FALSE is each of the following statements for you?			
33	I seem to get sick a little easier than other people. Definitely true (1) Mostly true (2) Don't know (3) Mostly false (4) Definitely false(5)		
34	I am as healthy as anybody I know. Definitely true (1) Mostly true (2) Don't know (3) Mostly false (4) Definitely false(5)		

Question #	Question	Answer	Score (for MD use)
35	<p>I expect my health to get worse.</p> <p>Definitely true (1)</p> <p>Mostly true (2)</p> <p>Don't know (3)</p> <p>Mostly false (4)</p> <p>Definitely false(5)</p>		
36	<p>My health is excellent.</p> <p>Definitely true (1)</p> <p>Mostly true (2)</p> <p>Don't know (3)</p> <p>Mostly false (4)</p> <p>Definitely false (5)</p>		

SF 36 Scoring Tool

INTRODUCTION

The RAND 36-Item Health Survey (Version 1.0) taps eight health concepts: physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. It also includes a single item that provides an indication of perceived change in health. These 36 items, presented here, are identical to the MOS SF-36 described in Ware and Sherbourne (1992). They were adapted from longer instruments completed by patients participating in the Medical Outcomes Study (MOS), an observational study of variations in physician practice styles and patient outcomes in different systems of health care delivery (Hays & Shapiro, 1992; Stewart, Sherbourne, Hays, et al., 1992). A revised version of the RAND 36-Item Health Survey (Version 1.1) that differs slightly from Version 1.0 in terms of item wording is currently in development.

SCORING RULES FOR THE RAND 36-ITEM HEALTH SURVEY (Version 1.0)

We recommend that responses be scored as described below. A somewhat different scoring procedure for the MOS SF-36 has been distributed by the International Resource Center for Health Care Assessment (located in Boston, MA). Because the scoring method described here (a simpler and more straightforward procedure) differs from that of the MOS SF-36, persons using this scoring method should refer to the instrument as the RAND 36-Item Health Survey 1.0.

Scoring the RAND 36-Item Health Survey is a two-step process. First, precoded numeric values are recoded per the scoring key given in Table 1. Note that all items are scored so that a high score defines a more favorable health state. In addition, each item is scored on a 0 to 100 range so that the lowest and highest possible scores are set at 0 and 100, respectively. Scores represent the percentage of total possible score achieved. In step 2, items in the same scale are averaged together to create the 8 scale scores. Table 2 lists the items averaged together to create each scale. Items that are left blank (missing data) are not taken into account when calculating the scale scores. Hence, scale scores represent the average for all items in the scale that the respondent answered.

Example: Items 20 and 32 are used to score the measure of social functioning. Each of the two items has 5 response choices. However, a high score

(response choice 5) on item 20 indicates extreme limitations in social functioning, while a high score (response choice 5) on item 32 indicates the absence of limitations in social functioning. To score both items in the same direction, Table 1 shows that responses 1 through 5 for item 20 should be recoded to values of 100, 75, 50, 25, and 0, respectively. Responses 1 through 5 for item 32 should be recoded to values of 0, 25, 50, 75, and 100, respectively. Table 2 shows that these two recoded items should be averaged together to form the social functioning scale. If the respondent is missing one of the two items, the person's score will be equal to that of the nonmissing item.

Table 3 presents information on the reliability, central tendency and variability of the scales scored using this method.

References

1. Ware, J.E., Jr., and Sherbourne, C.D. "The MOS 36-Item Short-Form Health Survey (SF-36): I. Conceptual Framework and Item Selection," *Medical Care*, 30:473-483, 1992.
2. Hays, R.D., & Shapiro, M.F. "An Overview of Generic Health-Related Quality of Life Measures For HIV Research," *Quality of Life Research*, 1: 91-97, 1992.
3. Stewart, A. L., Sherbourne, C., Hays, R. D., et al. "Summary and Discussion of MOS Measures," In A. L. Stewart & J. E. Ware (eds.), *Measuring Functioning and Well-Being: The Medical Outcome Study Approach* (pp. 345-371). Durham, NC: Duke University Press, 1992.

Table 1
STEP 1: RECODING ITEMS

ITEM NUMBERS	Change original response category (a)	To recoded value of:
1,2,20,22,34,36	1 ----- >	100
	2 ----- >	75
	3 ----- >	50
	4 ----- >	25
	5 ----- >	0
3,4,5,6,7,8,9,10,11,12	1 ----- >	0
	2 ----- >	50
	3 ----- >	100
13,14,15,16,17,18,19	1 ----- >	0
	2 ----- >	100
21,23,26,27,30	1 ----- >	100
	2 ----- >	80
	3 ----- >	60
	4 ----- >	40
	5 ----- >	20
	6 ----- >	0
24,25,28,29,31	1 ----- >	0
	2 ----- >	20
	3 ----- >	40
	4 ----- >	60
	5 ----- >	80
	6 ----- >	100
32,33,35	1 ----- >	0
	2 ----- >	25
	3 ----- >	50
	4 ----- >	75
	5 ----- >	100

(a) Precoded response choices as printed in the questionnaire.

Table 2
STEP 2: AVERAGING ITEMS TO FORM SCALES

Scale	Number Of Items	After Recoding Per Table 1, Average The Following Items:
Physical functioning	10	3 4 5 6 7 8 9 10 11 12
Role limitations due to physical health	4	13 14 15 16
Role limitations due to emotional problems	3	17 18 19
Energy/fatigue	4	23 27 29 31
Emotional well-being	5	24 25 26 28 30
Social functioning	2	20 32
Pain	2	21 22
General health	5	1 33 34 35 36

Table 3
RELIABILITY, CENTRAL TENDENCY AND VARIABILITY OF SCALES IN THE
MEDICAL OUTCOMES STUDY

Scale	Items	Alpha	Mean	SD
Physical functioning	10	0.93	70.61	27.42
Role functioning/physical	4	0.84	52.97	40.78
Role functioning/emotional	3	0.83	65.78	40.71
Energy/fatigue	4	0.86	52.15	22.39
Emotional well-being	5	0.90	70.38	21.97
Social functioning	2	0.85	78.77	25.43
Pain	2	0.78	70.77	25.46
General health	5	0.78	56.99	21.11
Health change	1	----	59.14	23.12

Note: Data is from baseline of the Medical Outcomes Study (N = 2471), except for Health change, which was obtained one-year later.

SIX MINUTE WALK TEST

The 6MWT may be conducted in a 3-m-wide hallway with a 15-m area marked off at 1-m intervals and large cones placed at each end.

Subjects are read the following instructions: "When I say 'go,' I want you to walk around this track. Keep walking until I say 'stop' or until you are too tired to go any further. If you need to rest, you can stop until you're ready to go again. I am interested in measuring how far you can walk. You can begin when I say 'go.'"

The following encouragements are provided:

- (1) after 1 minute, "You are doing well. You have 5 minutes to go."
- (2) at 2 minutes, "Keep up the good work. You have 4 minutes to go."
- (3) at 4 minutes, "Keep up the good work. You have 2 minutes left."
- (4) at 5 minutes, "You are doing well. You have only 1 minute to go."

Fifteen seconds prior to completion, subjects are informed that time will stop shortly, and the test is stopped at six minutes.

Total distance walked is measured to the nearest meter.

(Steffan and Seney, 2008).

SHOULDER PAIN AND DISABILITY INDEX **(SPADI)**

Shoulder Pain and Disability Index

Please place a mark on the line that best represents your experience during the last week attributable to your shoulder problem.

Pain scale

How severe is your pain?

Circle the number that best describes your pain where: 0 = no pain and 10 = the worst pain imaginable.

At its worst?	0	1	2	3	4	5	6	7	8	9	10
When lying on the involved side?	0	1	2	3	4	5	6	7	8	9	10
Reaching for something on a high shelf?	0	1	2	3	4	5	6	7	8	9	10
Touching the back of your neck?	0	1	2	3	4	5	6	7	8	9	10
Pushing with the involved arm?	0	1	2	3	4	5	6	7	8	9	10

Total pain score _____ / 50 x 100 = _____ %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 40)

Disability scale

How much difficulty do you have?

Circle the number that best describes your experience where: 0 = no difficulty and 10 = so difficult it requires help

Washing your hair?	0	1	2	3	4	5	6	7	8	9	10
Washing your back?	0	1	2	3	4	5	6	7	8	9	10
Putting on an undershirt or jumper?	0	1	2	3	4	5	6	7	8	9	10
Putting on a shirt that buttons down the front?	0	1	2	3	4	5	6	7	8	9	10
Putting on your pants?	0	1	2	3	4	5	6	7	8	9	10
Placing an object on a high shelf?	0	1	2	3	4	5	6	7	8	9	10
Carrying a heavy object of 10 pounds (4.5 kilograms)	0	1	2	3	4	5	6	7	8	9	10
Removing something from your back pocket?	0	1	2	3	4	5	6	7	8	9	10

Total disability score: _____ / 80 x 100 = _____ %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 70)

Total Spadi score: _____ 130 x 100 = _____ %

(Note: If a person does not answer all questions divide by the total possible score, eg if 1 question missed divide by 120)

Minimum Detectable Change (90% confidence) = 13 points
(Change less than this may be attributable to measurement error)

Source: Roach et al. (1991). Development of a shoulder pain and disability index.

SHORT PHYSICAL PERFORMANCE BATTERY (SPPB)

Short Physical Performance Battery

1. Repeated Chair Stands

Instructions: Do you think it is safe for you to try and stand up from a chair five times without using your arms? Please stand up straight as quickly as you can five times, without stopping in between. After standing up each time, sit down and then stand up again. Keep your arms folded across your chest. Please watch while I demonstrate. I'll be timing you with a stopwatch. Are you ready? Begin

Grading: Begin stop watch when subject begins to stand up. Count aloud each time subject arises. Stop the stopwatch when subject has straightened up completely for the fifth time. Also stop if the subject uses arms, or after 1 minute, if subject has not completed rises, and if concerned about the subject's safety.. Record the number of seconds and the presence of imbalance.. Then complete ordinal scoring.

Time: _____sec (if five stands are completed)

Number of Stands Completed: 1 2 3 4 5

Chair Stand Ordinal Score: _____

0 = unable

1 = > 16.7 sec

2 = 16.6-13.7 sec

3 = 13.6-11.2 sec

4 = < 11.1 sec

2. Balance Testing

Begin with a semitandem stand (heel of one foot placed by the big toe of the other foot). Individuals unable to hold this position should try the side-by-side position. Those able to stand in the semitandem position should be tested in the full tandem position. Once you have completed time measures, complete ordinal scoring.

a. Semitandem Stand

Instructions: Now I want you to try to stand with the side of the heel of one foot touching the big toe of the other foot for about 10 seconds. You may put either foot in front, whichever is more comfortable for you. Please watch while I demonstrate.

Grading: Stand next to the participant to help him or her into semitandem position. Allow participant to hold onto your arms to get balance. Begin timing when participant has the feet in

position and lets go.

Circle one number

2. Held for 10 sec

1. Held for less than 10 sec; number of seconds held _____

0. Not attempted

b. Side-by-Side stand

Instructions: I want you to try to stand with your feet together, side by side, for about 10 sec. Please watch while I demonstrate. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop.

Grading: Stand next to the participant to help him or her into the side-by-side position. Allow participant to hold onto your arms to get balance. Begin timing when participant has feet together and lets go.

Grading

2. Held of 10 sec

1. Held for less than 10 sec; number of seconds held _____

0. Not attempted

c. Tandem Stand

Instructions: Now I want you to try to stand with the heel of one foot in front of and touching the toes of the other foot for 10 sec. You may put either foot in front, whichever is more comfortable for you. Please watch while I demonstrate.

Grading: Stand next to the participant to help him or her into the side-by-side position. Allow participant to hold onto your arms to get balance. Begin timing when participant has feet together and lets go.

Grading

2. Held of 10 sec

1. Held for less than 10 sec; number of seconds held _____

0. Not attempted

Balance Ordinal Score: _____

0 = side by side 0-9 sec or unable

1 = side by side 10, <10 sec semitandem

2 = semitandem 10 sec, tandem 0-2 sec

3 = semitandem 10 sec, tandem 3-9 sec

4 = tandem 10 sec

3. 8' Walk (2.44 meters)

Instructions: This is our walking course. If you use a cane or other walking aid when walking outside your home, please use it for this test. I want you to walk at your usual pace to the other end of this course (a distance of 8'). Walk all the way past the other end of the tape before you stop. I will walk with you. Are you ready?

Grading: Press the start button to start the stopwatch as the participant begins walking. Measure the time take to walk 8'. Then complete ordinal scoring.

Time: _____ sec

Gait Ordinal Score: _____

0 = could not do

1 = >5.7 sec (<0.43 m/sec)

2 = 4.1-6.5 sec (0.44-0.60 m/sec)

3 = 3.2-4.0 (0.61-0.77 m/sec)

4 = <3.1 sec (>0.78 m/sec)

Summary Ordinal Score: _____

Range: 0 (worst performance) to 12 (best performance). Shown to have predictive validity showing a gradient of risk for mortality, nursing home admission, and disability.

Reprinted from Guralnik JM, Simonsick EM, Ferrucci L, Glynn RJ, Berkman LF, Blazer DG, Scherr PA, Wallace RB. A short physical performance battery assessing lower extremity function: association with self-reported disability and prediction of mortality and nursing home admission. J Gerontol Med Sci 1994; 49(2):M85-M94

Stroke Impact Scale

VERSION 3.0

The purpose of this questionnaire is to evaluate how stroke has impacted your health and life. We want to know from **YOUR POINT OF VIEW** how stroke has affected you. We will ask you questions about impairments and disabilities caused by your stroke, as well as how stroke has affected your quality of life. Finally, we will ask you to rate how much you think you have recovered from your stroke.

Stroke Impact Scale

These questions are about the physical problems which may have occurred as a result of your stroke.

1. In the past week, how would you rate the strength of your....	A lot of strength	Quite a bit of strength	Some strength	A little strength	No strength at all
a. Arm that was <u>most affected</u> by your stroke?	5	4	3	2	1
b. Grip of your hand that was <u>most affected</u> by your stroke?	5	4	3	2	1
c. Leg that was <u>most affected</u> by your stroke?	5	4	3	2	1
d. Foot/ankle that was <u>most affected</u> by your stroke?	5	4	3	2	1

These questions are about your memory and thinking.

2. In the past week, how difficult was it for you to...	Not difficult at all	A little difficult	Somewhat difficult	Very difficult	Extremely difficult
a. Remember things that people just told you?	5	4	3	2	1
b. Remember things that happened the day before?	5	4	3	2	1
c. Remember to do things (e.g. keep scheduled appointments or take medication)?	5	4	3	2	1
d. Remember the day of the week?	5	4	3	2	1
e. Concentrate?	5	4	3	2	1
f. Think quickly?	5	4	3	2	1
g. Solve everyday problems?	5	4	3	2	1

These questions are about how you feel, about changes in your mood and about your ability to control your emotions since your stroke.

3. In the past week, how often did you...	None of the time	A little of the time	Some of the time	Most of the time	All of the time
a. Feel sad?	5	4	3	2	1
b. Feel that there is nobody you are close to?	5	4	3	2	1
c. Feel that you are a burden to others?	5	4	3	2	1
d. Feel that you have nothing to look forward to?	5	4	3	2	1
e. Blame yourself for mistakes that you made?	5	4	3	2	1
f. Enjoy things as much as ever?	5	4	3	2	1
g. Feel quite nervous?	5	4	3	2	1
h. Feel that life is worth living?	5	4	3	2	1
i. Smile and laugh at least once a day?	5	4	3	2	1

The following questions are about your ability to communicate with other people, as well as your ability to understand what you read and what you hear in a conversation.

4. In the past week, how difficult was it to...	Not difficult at all	A little difficult	Somewhat difficult	Very difficult	Extremely difficult
a. Say the name of someone who was in front of you?	5	4	3	2	1
b. Understand what was being said to you in a conversation?	5	4	3	2	1
c. Reply to questions?	5	4	3	2	1
d. Correctly name objects?	5	4	3	2	1
e. Participate in a conversation with a group of people?	5	4	3	2	1
f. Have a conversation on the telephone?	5	4	3	2	1
g. Call another person on the telephone, including selecting the correct phone number and dialing?	5	4	3	2	1

The following questions ask about activities you might do during a typical day.

5. In the past 2 weeks, how difficult was it to...	Not difficult at all	A little difficult	Somewhat difficult	Very difficult	Could not do at all
a. Cut your food with a knife and fork?	5	4	3	2	1
b. Dress the top part of your body?	5	4	3	2	1
c. Bathe yourself?	5	4	3	2	1
d. Clip your toenails?	5	4	3	2	1
e. Get to the toilet on time?	5	4	3	2	1
f. Control your bladder (not have an accident)?	5	4	3	2	1
g. Control your bowels (not have an accident)?	5	4	3	2	1
h. Do light household tasks/chores (e.g. dust, make a bed, take out garbage, do the dishes)?	5	4	3	2	1
i. Go shopping?	5	4	3	2	1
j. Do heavy household chores (e.g. vacuum, laundry or yard work)?	5	4	3	2	1

The following questions are about your ability to be mobile, at home and in the community.

6. In the past 2 weeks, how difficult was it to...	Not difficult at all	A little difficult	Somewhat difficult	Very difficult	Could not do at all
a. Stay sitting without losing your balance?	5	4	3	2	1
b. Stay standing without losing your balance?	5	4	3	2	1
c. Walk without losing your balance?	5	4	3	2	1
d. Move from a bed to a chair?	5	4	3	2	1
e. Walk one block?	5	4	3	2	1
f. Walk fast?	5	4	3	2	1
g. Climb one flight of stairs?	5	4	3	2	1
h. Climb several flights of stairs?	5	4	3	2	1
i. Get in and out of a car?	5	4	3	2	1

The following questions are about your ability to use your hand that was MOST AFFECTED by your stroke.

7. In the past 2 weeks, how difficult was it to use your hand that was most affected by your stroke to...	Not difficult at all	A little difficult	Somewhat difficult	Very difficult	Could not do at all
a. Carry heavy objects (e.g. bag of groceries)?	5	4	3	2	1
b. Turn a doorknob?	5	4	3	2	1
c. Open a can or jar?	5	4	3	2	1
d. Tie a shoe lace?	5	4	3	2	1
e. Pick up a dime?	5	4	3	2	1

The following questions are about how stroke has affected your ability to participate in the activities that you usually do, things that are meaningful to you and help you to find purpose in life.

8. During the past 4 weeks, how much of the time have you been limited in...	None of the time	A little of the time	Some of the time	Most of the time	All of the time
a. Your work (paid, voluntary or other)	5	4	3	2	1
b. Your social activities?	5	4	3	2	1
c. Quiet recreation (crafts, reading)?	5	4	3	2	1
d. Active recreation (sports, outings, travel)?	5	4	3	2	1
e. Your role as a family member and/or friend?	5	4	3	2	1
f. Your participation in spiritual or religious activities?	5	4	3	2	1
g. Your ability to control your life as you wish?	5	4	3	2	1
h. Your ability to help others?	5	4	3	2	1

9. Stroke Recovery

On a scale of 0 to 100, with 100 representing full recovery and 0 representing no recovery, how much have you recovered from your stroke?

_____	100	Full Recovery
—		
_____	90	
—		
_____	80	
—		
_____	70	
—		
_____	60	
—		
_____	50	
—		
_____	40	
—		
_____	30	
—		
_____	20	
—		
_____	10	
_____	0	No Recovery

Timed Up and Go (TUG) Test^{1,2}

1. Equipment: arm chair, tape measure, tape, stop watch.
2. Begin the test with the subject sitting correctly in a chair with arms, the subject's back should be resting on the back of the chair. The chair should be stable and positioned such that it will not move when the subject moves from sitting to standing.
3. Place a piece of tape or other marker on the floor 3 meters away from the chair so that it is easily seen by the subject.
4. Instructions : "On the word GO you will stand up, walk to the line on the floor, turn around and walk back to the chair and sit down. Walk at your regular pace.
5. Start timing on the word "GO" and stop timing when the subject is seated again correctly in the chair with their back resting on the back of the chair.
6. The subject wears their regular footwear, may use any gait aid that they normally use during ambulation, but may not be assisted by another person. There is no time limit. They may stop and rest (but not sit down) if they need to.
7. Normal healthy elderly usually complete the task in ten seconds or less. Very frail or weak elderly with poor mobility may take 2 minutes or more.
8. The subject should be given a practice trial that is not timed before testing.
9. Results correlate with gait speed, balance, functional level, the ability to go out, and can change over time.
10. Interpretation ≤ 10 seconds = normal
 ≤ 20 seconds = good mobility, can go out alone, mobile without a gait aid.
 < 30 seconds = problems, cannot go outside alone, requires a gait aid.

A score of more than or equal to fourteen seconds has been shown to indicate high risk of falls.

1. Podsiadlo D, Richardson S. *The Time "Up & Go": A Test of Basic Functional Mobility for Frail Elderly Persons*. Journal of the American Geriatrics Society 1991; 39(2): 142-148
2. Shumway - Cook A, Brauer S, Woollacott M. *Predicting the Probability for Falls in Community-Dwelling Older Adults Using the Timed Up & Go Test*. Physical Therapy 2000 Vol 80(9): 896-903.
Saskatoon Falls Prevention Consortium, Falls Screening and Referral Algorithm, TUG, Saskatoon Falls Prevention consortium, June, 2005

UNITED PARKINSON'S DISABILITY RATING SCALE (UPDRS)

UNIFIED PARKINSON'S DISEASE RATING SCALE (UPDRS)

I. MENTATION, BEHAVIOR AND MOOD

1. Intellectual Impairment

- 0 = None.
- 1 = Mild. Consistent forgetfulness with partial recollection of events and no other difficulties.
- 2 = Moderate memory loss, with disorientation and moderate difficulty handling complex problems.
Mild but definite impairment of function at home with need of occasional prompting.
- 3 = Severe memory loss with disorientation for time and often to place.
Severe impairment in handling problems.
- 4 = Severe memory loss with orientation preserved to person only. Unable to make judgements or solve problems. Requires much help with personal care. Cannot be left alone at all.

2. Thought Disorder (Due to dementia or drug intoxication)

- 0 = None.
- 1 = Vivid dreaming.
- 2 = "Benign" hallucinations with insight retained.
- 3 = Occasional to frequent hallucinations or delusions; without insight;
could interfere with daily activities.
- 4 = Persistent hallucinations, delusions, or florid psychosis. Not able to care for self.

3. Depression

- 0 = None.
- 1 = Periods of sadness or guilt greater than normal, never sustained for days or weeks.
- 2 = Sustained depression (1 week or more).
- 3 = Sustained depression with vegetative symptoms (insomnia, anorexia, weight loss, loss of interest).
- 4 = Sustained depression with vegetative symptoms and suicidal thoughts or intent.

4. Motivation/Initiative

- 0 = Normal.
 - 1 = Less assertive than usual; more passive.
 - 2 = Loss of initiative or disinterest in elective (nonroutine) activities.
 - 3 = Loss of initiative or disinterest in day to day (routine) activities.
 - 4 = Withdrawn, complete loss of motivation.
-

II. ACTIVITIES OF DAILY LIVING (for both "on" and "off")

5. Speech

- 0 = Normal.
- 1 = Mildly affected. No difficulty being understood.
- 2 = Moderately affected. Sometimes asked to repeat statements.
- 3 = Severely affected. Frequently asked to repeat statements.
- 4 = Unintelligible most of the time.

6. Salivation

- 0 = Normal.
- 1 = Slight but definite excess of saliva in mouth; may have nighttime drooling.
- 2 = Moderately excessive saliva; may have minimal drooling.
- 3 = Marked excess of saliva with some drooling.
- 4 = Marked drooling, requires constant tissue or handkerchief.

7. Swallowing

- 0 = Normal.
 - 1 = Rare choking.
 - 2 = Occasional choking.
 - 3 = Requires soft food.
 - 4 = Requires NG tube or gastrostomy feeding.
-

8. Handwriting

- 0 = Normal.
- 1 = Slightly slow or small.
- 2 = Moderately slow or small; all words are legible.
- 3 = Severely affected; not all words are legible.
- 4 = The majority of words are not legible.

9. Cutting food and handling utensils

- 0 = Normal.
- 1 = Somewhat slow and clumsy, but no help needed.
- 2 = Can cut most foods, although clumsy and slow; some help needed.
- 3 = Food must be cut by someone, but can still feed slowly.
- 4 = Needs to be fed.

10. Dressing

- 0 = Normal.
- 1 = Somewhat slow, but no help needed.
- 2 = Occasional assistance with buttoning, getting arms in sleeves.
- 3 = Considerable help required, but can do some things alone.
- 4 = Helpless.

11. Hygiene

- 0 = Normal.
- 1 = Somewhat slow, but no help needed.
- 2 = Needs help to shower or bathe; or very slow in hygienic care.
- 3 = Requires assistance for washing, brushing teeth, combing hair, going to bathroom.
- 4 = Foley catheter or other mechanical aids.

12. Turning in bed and adjusting bed clothes

- 0 = Normal.
- 1 = Somewhat slow and clumsy, but no help needed.
- 2 = Can turn alone or adjust sheets, but with great difficulty.
- 3 = Can initiate, but not turn or adjust sheets alone.
- 4 = Helpless.

13. Falling (unrelated to freezing)

- 0 = None.
- 1 = Rare falling.
- 2 = Occasionally falls, less than once per day.
- 3 = Falls an average of once daily.
- 4 = Falls more than once daily.

14. Freezing when walking

- 0 = None.
- 1 = Rare freezing when walking; may have start hesitation.
- 2 = Occasional freezing when walking.
- 3 = Frequent freezing. Occasionally falls from freezing.
- 4 = Frequent falls from freezing.

15. Walking

- 0 = Normal.
- 1 = Mild difficulty. May not swing arms or may tend to drag leg.
- 2 = Moderate difficulty, but requires little or no assistance.
- 3 = Severe disturbance of walking, requiring assistance.
- 4 = Cannot walk at all, even with assistance.

16. Tremor (Symptomatic complaint of tremor in any part of body.)

- 0 = Absent.
 - 1 = Slight and infrequently present.
 - 2 = Moderate; bothersome to patient.
 - 3 = Severe; interferes with many activities.
 - 4 = Marked; interferes with most activities.
-

17. Sensory complaints related to parkinsonism

- 0 = None.
 - 1 = Occasionally has numbness, tingling, or mild aching.
 - 2 = Frequently has numbness, tingling, or aching; not distressing.
 - 3 = Frequent painful sensations.
 - 4 = Excruciating pain.
-

III. MOTOR EXAMINATION

18. Speech

- 0 = Normal.
- 1 = Slight loss of expression, diction and/or volume.
- 2 = Monotone, slurred but understandable; moderately impaired.
- 3 = Marked impairment, difficult to understand.
- 4 = Unintelligible.

19. Facial Expression

- 0 = Normal.
- 1 = Minimal hypomimia, could be normal "Poker Face".
- 2 = Slight but definitely abnormal diminution of facial expression.
- 3 = Moderate hypomimia; lips parted some of the time.
- 4 = Masked or fixed facies with severe or complete loss of facial expression; lips parted 1/4 inch or more.

20. Tremor at rest (head, upper and lower extremities)

- 0 = Absent.
- 1 = Slight and infrequently present.
- 2 = Mild in amplitude and persistent. Or moderate in amplitude, but only intermittently present.
- 3 = Moderate in amplitude and present most of the time.
- 4 = Marked in amplitude and present most of the time.

21. Action or Postural Tremor of hands

- 0 = Absent.
- 1 = Slight; present with action.
- 2 = Moderate in amplitude, present with action.
- 3 = Moderate in amplitude with posture holding as well as action.
- 4 = Marked in amplitude; interferes with feeding.

22. Rigidity (Judged on passive movement of major joints with patient relaxed in sitting position. Cogwheeling to be ignored.)

- 0 = Absent.
- 1 = Slight or detectable only when activated by mirror or other movements.
- 2 = Mild to moderate.
- 3 = Marked, but full range of motion easily achieved.
- 4 = Severe, range of motion achieved with difficulty.

23. Finger Taps (Patient taps thumb with index finger in rapid succession.)

- 0 = Normal.
- 1 = Mild slowing and/or reduction in amplitude.
- 2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.
- 3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.
- 4 = Can barely perform the task.

24. Hand Movements (Patient opens and closes hands in rapid succession.)

- 0 = Normal.
 - 1 = Mild slowing and/or reduction in amplitude.
 - 2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.
 - 3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.
 - 4 = Can barely perform the task.
-

25. Rapid Alternating Movements of Hands (Pronation-supination movements of hands, vertically and horizontally, with as large an amplitude as possible, both hands simultaneously.)

0 = Normal.

1 = Mild slowing and/or reduction in amplitude.

2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.

3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.

4 = Can barely perform the task.

26. Leg Agility (Patient taps heel on the ground in rapid succession picking up entire leg. Amplitude should be at least 3 inches.)

0 = Normal.

1 = Mild slowing and/or reduction in amplitude.

2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.

3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.

4 = Can barely perform the task.

27. Arising from Chair

(Patient attempts to rise from a straightbacked chair, with arms folded across chest.)

0 = Normal.

1 = Slow; or may need more than one attempt.

2 = Pushes self up from arms of seat.

3 = Tends to fall back and may have to try more than one time, but can get up without help.

4 = Unable to arise without help.

28. Posture

0 = Normal erect.

1 = Not quite erect, slightly stooped posture; could be normal for older person.

2 = Moderately stooped posture, definitely abnormal; can be slightly leaning to one side.

3 = Severely stooped posture with kyphosis; can be moderately leaning to one side.

4 = Marked flexion with extreme abnormality of posture.

29. Gait

0 = Normal.

1 = Walks slowly, may shuffle with short steps, but no festination (hastening steps) or propulsion.

2 = Walks with difficulty, but requires little or no assistance; may have some festination, short steps, or propulsion.

3 = Severe disturbance of gait, requiring assistance.

4 = Cannot walk at all, even with assistance.

30. Postural Stability (Response to sudden, strong posterior displacement produced by pull on shoulders while patient erect with eyes open and feet slightly apart. Patient is prepared.)

0 = Normal.

1 = Retropulsion, but recovers unaided.

2 = Absence of postural response; would fall if not caught by examiner.

3 = Very unstable, tends to lose balance spontaneously.

4 = Unable to stand without assistance.

31. Body Bradykinesia and Hypokinesia (Combining slowness, hesitancy, decreased armswing, small amplitude, and poverty of movement in general.)

0 = None.

1 = Minimal slowness, giving movement a deliberate character; could be normal for some persons. Possibly reduced amplitude.

2 = Mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude.

3 = Moderate slowness, poverty or small amplitude of movement.

4 = Marked slowness, poverty or small amplitude of movement.

IV. COMPLICATIONS OF THERAPY *(In the past week)*

A. DYSKINESIAS

32. Duration: What proportion of the waking day are dyskinesias present?
(Historical information.)

- 0 = None
- 1 = 1-25% of day.
- 2 = 26-50% of day.
- 3 = 51-75% of day.
- 4 = 76-100% of day.

33. Disability: How disabling are the dyskinesias?

(Historical information; may be modified by office examination.)

- 0 = Not disabling.
- 1 = Mildly disabling.
- 2 = Moderately disabling.
- 3 = Severely disabling.
- 4 = Completely disabled.

34. Painful Dyskinesias: How painful are the dyskinesias?

- 0 = No painful dyskinesias.
- 1 = Slight.
- 2 = Moderate.
- 3 = Severe.
- 4 = Marked.

35. Presence of Early Morning Dystonia (Historical information.)

- 0 = No
- 1 = Yes

B. CLINICAL FLUCTUATIONS

36. Are "off" periods predictable?

- 0 = No
- 1 = Yes

37. Are "off" periods unpredictable?

- 0 = No
- 1 = Yes

38. Do "off" periods come on suddenly, within a few seconds?

- 0 = No
- 1 = Yes

39. What proportion of the waking day is the patient "off" on average?

- 0 = None
- 1 = 1-25% of day.
- 2 = 26-50% of day.
- 3 = 51-75% of day.
- 4 = 76-100% of day.

C. OTHER COMPLICATIONS

40. Does the patient have anorexia, nausea, or vomiting?

- 0 = No
- 1 = Yes

41. Any sleep disturbances, such as insomnia or hypersomnolence?

- 0 = No
 - 1 = Yes
-

42. Does the patient have symptomatic orthostasis?

(Record the patient's blood pressure, height and weight on the scoring form)

0 = No

1 = Yes

V. MODIFIED HOEHN AND YAHR STAGING

STAGE 0 = No signs of disease.

STAGE 1 = Unilateral disease.

STAGE 1.5 = Unilateral plus axial involvement.

STAGE 2 = Bilateral disease, without impairment of balance.

STAGE 2.5 = Mild bilateral disease, with recovery on pull test.

STAGE 3 = Mild to moderate bilateral disease; some postural instability; physically independent.

STAGE 4 = Severe disability; still able to walk or stand unassisted.

STAGE 5 = Wheelchair bound or bedridden unless aided.

VI. SCHWAB AND ENGLAND ACTIVITIES OF DAILY LIVING SCALE

100% = Completely independent. Able to do all chores without slowness, difficulty or impairment. Essentially normal. Unaware of any difficulty.

90% = Completely independent. Able to do all chores with some degree of slowness, difficulty and impairment. Might take twice as long. Beginning to be aware of difficulty.

80% = Completely independent in most chores. Takes twice as long. Conscious of difficulty and slowness.

70% = Not completely independent. More difficulty with some chores. Three to four times as long in some. Must spend a large part of the day with chores.

60% = Some dependency. Can do most chores, but exceedingly slowly and with much effort. Errors; some impossible.

50% = More dependent. Help with half, slower, etc. Difficulty with everything.

40% = Very dependent. Can assist with all chores, but few alone.

30% = With effort, now and then does a few chores alone or begins alone. Much help needed.

20% = Nothing alone. Can be a slight help with some chores. Severe invalid.

10% = Totally dependent, helpless. Complete invalid.

0% = Vegetative functions such as swallowing, bladder and bowel functions are not functioning. Bedridden.

WOLF MOTOR FUNCTION TEST

General Description of the WMFT*

All tasks are performed as quickly as possible and are truncated at 120 seconds.

Tasks are as follows:

1. Forearm to table (side): Subject attempts to place forearm on the table by abduction at the shoulder.
2. Forearm to box (side): Subject attempts to place a forearm on the box by abduction at the shoulder.
3. Extend elbow (side): Subject attempts to reach across the table by extending the elbow (to the side).
4. Extend elbow (to the side), with weight: Subject attempts to push the sandbag against outer wrist joint across the table by extending the elbow.
5. Hand to table (front): Subject attempts to place involved hand on the table.
6. Hand to box (front): Subject attempts to place hand on the box.
7. Reach and retrieve (front): Subject attempts to pull 1-lb weight across the table by using elbow flexion and cupped wrist.
8. Lift can (front): Subject attempts to lift can and bring it close to lips with a cylindrical grasp.
9. Lift pencil (front): Subject attempts to pick up pencil by using 3-jaw chuck grasp.
10. Pick up paper clip (front): Subject attempts to pick up paper clip by using a pincer grasp.
11. Stack checkers (front): Subject attempts to stack checkers onto the center checker.
12. Flip cards (front): Using the pincer grasp, patient attempts to flip each card over.
13. Turning the key in lock (front): Using pincer grasp, while maintaining contact, patient turns key fully to the left and right.
14. Fold towel (front): Subject grasps towel, folds it lengthwise, and then uses the tested hand to fold the towel in half again.

15. Lift basket (standing): Subject picks up basket by grasping the handles and placing it on bedside table.

FMA: Upper Extremity Portion

I. Reflex activity

1. Biceps
2. Triceps

II. Flexor synergy

3. Shoulder retraction
4. Shoulder elevation
5. Shoulder abduction
6. Shoulder outward rotation
7. Elbow flexion
8. Forearm supination

III. Extensor synergy

9. Shoulder adduction/inward rotation
10. Elbow extension
11. Forearm pronation

IV. Movements combining synergies

12. Hand move to lumbar spine
13. Shoulder flexion 0° to 90°
14. Elbow 90°, pronation/supination

V. Movements out of synergy

15. Shoulder abduction 0° to 90°
16. Shoulder flexion 90° to 180°
17. Elbow 0°, pronation/supination

VI. Reflex activity

18. Normal reflex activity, biceps and triceps

VII. Wrist

19. Elbow 90°, wrist stability
20. Elbow 90°, wrist flexion/extension range of motion
21. Elbow 0°, wrist stability
22. Elbow 0°, wrist flexion/extension range of motion
23. Wrist circumduction

VIII. Hand

24. Fingers, mass flexion
25. Fingers, mass extension

- 26. Grasp a: First and radial surface of second digit pinch paper.
- 27. Grasp b: First and second digit pinch paper.
- 28. Grasp c: First and third digit pinch pencil.
- 29. Grasp d: First, second, and third digit grip coke can.
- 30. Grasp e: All digits grip tennis ball.

IX. Coordination/speed

- 31. Tremor
- 32. Dysmetria
- 33. Speed

*Wolf, Steven L., et al., "Assessing Wolf Motor Function Test as Outcome Measure for Research in Patients After Stroke"; *Stroke* 2001;32;1635-1639

WESTERN ONTARIO AND MCMASTER UNIVERSITIES OSTEOARTHRITIS INDEX (WOMAC)

Your Full Name: _____
_____/_____/_____

Today's Date:

Month Day Year

WOMAC OSTEOARTHRITIS INDEX

1. The following questions concern the amount of pain you are currently experiencing in your knees. For each situation, please enter the amount of pain you have experienced in the past 48 hours.

	None	mild	moderate	severe	extreme
A. Walking on a flat surface	A. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Going up or down stairs	B. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. At night while in bed	C. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Sitting or lying	D. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Standing upright	E. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Please describe the level of pain you have experienced in the past 48 hours for each one of your knees.

	None	mild	moderate	severe	extreme
A. Right knee	A. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Left knee	B. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. How severe is your stiffness after first awakening in the morning?

None	mild	moderate	severe	extreme
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How severe is your stiffness after sitting, lying, or resting later in the day?

None	mild	moderate	severe	extreme
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. The following questions concern your physical function. By this we mean your ability to move around and to look after yourself. For each of the following activities, please indicate the degree of difficulty you have experienced in the last 48 hours, in your knees.

What degree of difficulty do you have with:

	None	mild	moderate	severe	extreme
A. Descending (going down) stairs	A. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Ascending (going up) stairs	B. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Rising from sitting	C. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Standing	D. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Bending to floor	E. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Walking on a flat surface	F. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Getting in/out of car	G. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Going shopping	H. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Putting on socks/stockings	I. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Rising from bed	J. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Taking off socks/stockings	K. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Lying in bed	L. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. Getting in/out of bath	M. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. Sitting	N. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Getting on/off toilet	O. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Heavy domestic duties (mowing the lawn, lifting heavy grocery bags)	P. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Light domestic duties (such as tidying a room, dusting, cooking)	Q. <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

